

COMPREHENSIVE MOCK EXAM 7

Supplemental to: Vascular Neurology Board Review 2026-2027

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*ABPN Vascular Neurology Certification Examination — 220 questions, computer-based,
single-best-answer, domain-weighted per official blueprint*

Board-Review Questions

1. After prolonged systemic hypotension, a patient develops bilateral proximal arm weakness greater than leg weakness. MRI shows infarcts at the junction of ACA and MCA territories. What is the most likely mechanism?
 - A. Bilateral embolic infarction of the precentral motor cortices from a cardiac source.
 - B. Bilateral anterior cerebral artery infarction affecting medial frontal motor regions.
 - C. Small deep perforator infarctions involving both posterior limbs of the internal capsules.
 - D. Cervical spinal cord ischemia affecting the anterior horns and corticospinal tracts.
 - E. Hemodynamic border-zone ischemia from critically reduced cerebral perfusion.

2. Noncontrast CT confirms diffuse basal cistern subarachnoid blood. What is the next key diagnostic objective?
 - A. Repeat noncontrast CT after several hours before performing any vascular study.
 - B. Perform lumbar puncture to confirm subarachnoid blood despite the diagnostic CT.
 - C. Obtain brain MRI first to determine whether the hemorrhage is aneurysmal.
 - D. Identify the ruptured aneurysm with urgent cerebrovascular imaging.
 - E. Defer angiographic evaluation until the patient develops clinical vasospasm.

3. A patient with stable spontaneous ICH remains immobile. Repeat imaging shows no hematoma expansion. Which strategy can be considered for venous thromboembolism prevention after the early bleeding risk is reassessed?
 - A. Continue mechanical compression alone throughout hospitalization even after hematoma stability.
 - B. Use graduated compression stockings as the sole pharmacologic-equivalent prophylaxis strategy.
 - C. Delay all chemoprophylaxis until the patient is fully ambulatory or discharged.
 - D. Low-dose prophylactic unfractionated or low-molecular-weight heparin.
 - E. Begin therapeutic-dose anticoagulation once the first repeat CT shows no expansion.

4. A patient taking aspirin has a spontaneous supratentorial intracerebral hemorrhage and is not undergoing emergency neurosurgery. Which statement about platelet transfusion is most accurate?
- A. Transfuse platelets routinely because any aspirin exposure predicts ongoing platelet-mediated bleeding.
 - B. Use platelet transfusion as standard reversal before blood-pressure lowering is initiated.
 - C. Routine platelet transfusion can worsen outcome and should generally be avoided.
 - D. Give platelets routinely unless platelet-function testing demonstrates normal aggregation.
 - E. Use platelet transfusion preferentially to desmopressin whenever no surgery is planned.
5. A patient has fever, temporal lobe abnormalities, and focal seizures strongly concerning for HSV encephalitis. What treatment should be started immediately while diagnostic testing is pending?
- A. Begin high-dose corticosteroids as sole empiric therapy for presumed autoimmune encephalitis.
 - B. Begin intravenous acyclovir empirically while confirmatory CSF and imaging evaluation proceeds.
 - C. Withhold antiviral therapy until CSF HSV PCR confirms the diagnosis.
 - D. Begin broad-spectrum antibacterial meningitis therapy without antiviral coverage.
 - E. Use foscarnet as routine first-line empiric therapy in an immunocompetent patient.
6. A 28-year-old woman has recurrent episodes of gradually spreading scintillating visual phenomena followed over 15 minutes by tingling that moves from the hand to the face, then a throbbing headache with photophobia. Neurologic examination is normal afterward. Which diagnosis is most likely?
- A. Transient ischemic attack causing simultaneous negative visual and sensory symptoms at onset.
 - B. Occipital focal seizure with abrupt positive visual symptoms lasting less than two minutes.
 - C. Migraine with aura, characterized by gradually spreading positive neurologic symptoms followed by headache.
 - D. Reversible cerebral vasoconstriction syndrome causing recurrent maximal-at-onset headaches.
 - E. Retinal ischemia causing recurrent monocular negative visual episodes without sensory march.

7. A 63-year-old man has pulsatile tinnitus and progressive cognitive slowing. MRI shows prominent cortical veins, and angiography demonstrates abnormal shunting from dural arterial branches into a venous sinus with cortical venous reflux. What is the diagnosis?

- A. Brain arteriovenous malformation with a compact parenchymal nidus.
- B. Developmental venous anomaly with physiologic medullary venous drainage.
- C. Dural sinus thrombosis producing venous hypertension without an arteriovenous shunt.
- D. Carotid-cavernous fistula confined to cavernous sinus orbital venous drainage.
- E. Dural arteriovenous fistula with pathologic cortical venous reflux.

8. A 36-year-old woman has recurrent thunderclap headaches over one week. CTA shows multifocal segmental narrowing and dilation of several intracranial arteries. There is no inflammatory CSF profile. Which diagnosis is most likely?

- A. Primary angiitis of the CNS causing an inflammatory, progressively evolving arteriopathy.
- B. Moyamoya angiopathy causing fixed terminal internal carotid stenosis and basal collaterals.
- C. Aneurysmal subarachnoid hemorrhage with secondary focal vasospasm after a sentinel bleed.
- D. Fibromuscular dysplasia producing stable cervical arterial beading rather than reversible narrowing.
- E. Reversible cerebral vasoconstriction syndrome causing recurrent thunderclap headaches and multifocal arterial narrowing.

9. A patient has a severe cortical stroke syndrome and is being evaluated for mechanical thrombectomy. Which test most directly identifies an intracranial large-vessel occlusion in routine emergency practice?

- A. Noncontrast head CT to quantify early ischemic change but not directly show lumen patency.
- B. CT perfusion to estimate core and penumbra without directly defining all arterial anatomy.
- C. CT angiography of the head and neck to directly demonstrate the site of intracranial arterial occlusion.
- D. Time-of-flight MRA, which can identify occlusion but is less commonly the fastest routine test.
- E. Digital subtraction angiography, reserved mainly when proceeding to an invasive procedure.

10. A patient with a large ischemic stroke develops a temperature of 39.0°C during the first hospital day. Which approach is most appropriate?

- A.** Use antipyretics alone and defer evaluation for infection unless fever persists beyond 48 hours.
- B.** Identify and treat the cause of fever and use antipyretic measures.
- C.** Begin broad-spectrum antibiotics immediately without searching for a source of fever.
- D.** Use induced hypothermia routinely to normalize temperature after every large infarction.
- E.** Permit temperatures up to 40°C because fever may augment collateral cerebral blood flow.

11. A patient asks which dietary pattern is reasonable after atherosclerotic ischemic stroke. Which advice is most appropriate?

- A.** Adopt a high-sodium diet to avoid lowering cerebral perfusion pressure after stroke.
- B.** Use a ketogenic pattern rich in saturated fat as the preferred vascular-prevention diet.
- C.** Rely on antioxidant and vitamin supplements instead of changing the overall dietary pattern.
- D.** Use an unrestricted diet as long as a statin and antihypertensive medications are prescribed.
- E.** Favor a Mediterranean-style or low-sodium dietary pattern with overall vascular risk reduction.

12. A pregnant patient with severe hypertension develops headache, visual symptoms, seizures, and MRI showing bilateral parieto-occipital vasogenic edema. Which diagnosis is most likely?

- A.** Cerebral venous thrombosis causing venous infarction and intracranial hypertension.
- B.** Reversible cerebral vasoconstriction syndrome causing thunderclap headache and arterial narrowing.
- C.** Bilateral posterior cerebral artery infarction producing restricted diffusion in occipital cortex.
- D.** Eclampsia-associated intracerebral hemorrhage without vasogenic edema.
- E.** Posterior reversible encephalopathy syndrome with pregnancy-associated hypertension and posterior vasogenic edema.

13. A 67-year-old man has a nondisabling left hemispheric TIA and 80% stenosis of the ipsilateral cervical internal carotid artery. He is a reasonable surgical candidate. What is the best secondary-prevention strategy?

- A.** Carotid artery stenting as the default first choice despite low operative risk and favorable surgical anatomy.
- B.** Anticoagulation instead of revascularization because symptomatic carotid disease is primarily thromboembolic.
- C.** Carotid endarterectomy performed relatively early after the ischemic event.
- D.** Intensive medical therapy alone despite severe recently symptomatic stenosis and acceptable surgical risk.
- E.** Delay revascularization for several months to minimize perioperative risk after a nondisabling TIA.

14. A patient with a large hemispheric infarct is at high risk for malignant edema. Which monitoring approach is most important during the first several days?

- A.** Schedule routine CT imaging once daily and rely on imaging rather than serial examinations.
- B.** Frequent neurologic examinations with prompt repeat imaging for deterioration.
- C.** Place an intracranial-pressure monitor routinely before any change in consciousness occurs.
- D.** Use prophylactic hyperosmolar therapy continuously throughout the expected edema period.
- E.** Administer corticosteroids early to reduce cytotoxic edema and avoid decompressive surgery.

15. A patient experiences a medication error during transfer between teams because a critical dose change was omitted from the handoff. Which prevention strategy is most appropriate?

- A.** Use an unstructured narrative handoff but require the receiving team to review the chart independently.
- B.** Perform medication reconciliation only at hospital discharge rather than at inter-team transfers.
- C.** Use written medication lists without read-back or confirmation of recent high-risk dose changes.
- D.** Use a standardized handoff with medication reconciliation and read-back of critical changes.
- E.** Rely primarily on verbal sign-out because a standardized checklist may omit clinical nuance.

- 16.** A 52-year-old man develops vertigo, dysphagia, hoarseness, left facial pain-temperature loss, right body pain-temperature loss, and left-sided limb ataxia. Which localization is most likely?
- A.** Left lateral medulla, usually in the PICA or vertebral artery territory.
 - B.** Left medial medulla involving the pyramid, medial lemniscus, and hypoglossal fibers.
 - C.** Left lateral caudal pons involving facial and vestibulocochlear structures.
 - D.** Right lateral medulla producing ipsilateral facial and contralateral body sensory loss.
 - E.** Left cerebellar hemisphere producing limb ataxia without crossed sensory findings.
- 17.** A patient with mild-to-moderate spontaneous intracerebral hemorrhage has systolic pressures fluctuating between 185 and 210 mm Hg. Which blood-pressure strategy is preferred?
- A.** Defer treatment unless systolic pressure remains above 220 mm Hg for several hours.
 - B.** Lower systolic pressure rapidly to below 120 mm Hg to minimize continued bleeding.
 - C.** Use smooth, sustained lowering while minimizing large blood-pressure variability.
 - D.** Use intermittent bolus treatment only when systolic pressure exceeds 200 mm Hg, allowing wide fluctuations.
 - E.** Target permissive hypertension similar to an untreated acute ischemic stroke.
- 18.** A patient with cryptogenic cortical infarction has normal inpatient telemetry and no other identified mechanism. Which test can improve detection of intermittent atrial fibrillation after discharge?
- A.** Extended ambulatory rhythm monitoring, with an implantable monitor if needed.
 - B.** Repeat a single 12-lead ECG at the first outpatient follow-up visit.
 - C.** Obtain serial transthoracic echocardiograms to capture intermittent atrial fibrillation episodes.
 - D.** Use a 24-hour Holter once and stop rhythm evaluation if no arrhythmia is recorded.
 - E.** Perform an electrophysiology study routinely before considering longer noninvasive monitoring.
- 19.** A patient with moderate obstructive sleep apnea has persistent daytime symptoms and vascular risk factors. Which therapy is most effective for reliably splinting the upper airway during sleep?

- A.** A mandibular advancement device as the most reliable first choice for moderate symptomatic disease.
- B.** Continuous positive airway pressure therapy, which pneumatically splints the upper airway during sleep.
- C.** Nocturnal supplemental oxygen to correct desaturation without addressing upper-airway collapse.
- D.** Use positional therapy as sole treatment without first establishing whether the apnea is position dependent.
- E.** Upper-airway surgery as routine first-line therapy before a trial of positive airway pressure.

20. A 39-year-old man with early ischemic strokes has renal dysfunction, left ventricular hypertrophy, angiokeratomas, and burning pain in the hands and feet since adolescence. Which diagnosis is most likely?

- A.** CADASIL due to a NOTCH3 mutation with anterior temporal white-matter disease.
- B.** MELAS due to mitochondrial disease with nonterritorial stroke-like episodes and hearing loss.
- C.** Antiphospholipid syndrome causing recurrent arterial thrombosis and pregnancy morbidity.
- D.** Polyarteritis nodosa causing systemic medium-vessel vasculitis and mononeuritis multiplex.
- E.** Fabry disease, an X-linked lysosomal disorder with renal, cardiac, skin, and neuropathic manifestations.

21. A patient with atherosclerotic ischemic stroke remains well above the desired LDL level despite maximally tolerated high-intensity statin therapy. What is a reasonable next pharmacologic step?

- A.** Increase the statin beyond the maximally tolerated dose despite dose-limiting adverse effects.
- B.** Replace statin therapy with fibrate monotherapy when triglycerides are not markedly elevated.
- C.** Add a nonstatin LDL-lowering agent such as ezetimibe to the maximally tolerated statin regimen.
- D.** Switch to niacin monotherapy because it provides more reliable recurrent-stroke reduction.
- E.** Accept the residual LDL level because additional lipid lowering has no role after stroke.

22. A patient with suspected herpes simplex encephalitis is stable enough for lumbar puncture. Which CSF test is most diagnostically useful?

- A.** CSF bacterial culture, which is sensitive for HSV encephalitis during the first week.
- B.** Serum HSV IgG, which distinguishes acute CNS infection from remote exposure.
- C.** CSF oligoclonal bands, which are specific for herpes simplex infection.
- D.** EEG temporal periodic discharges, which are sufficiently specific to replace virologic testing.
- E.** CSF HSV polymerase chain reaction testing to detect herpes simplex viral DNA in the central nervous system.

23. A clinician accepts an initial diagnosis and then interprets every subsequent finding to support it despite contradictory evidence. Which cognitive error is most likely?

- A.** Confirmation bias, in which subsequent evidence is preferentially interpreted to support the initial diagnosis.
- B.** Anchoring bias, in which the initial diagnostic impression is not adequately revised.
- C.** Availability bias, in which recent memorable cases dominate probability estimates.
- D.** Outcome bias, in which decision quality is judged mainly by the eventual result.
- E.** Framing effect, in which equivalent information changes decisions depending on presentation.

24. A 55-year-old man continues to smoke one pack daily after an ischemic stroke. Which counseling point is most appropriate?

- A.** Recommend cutting cigarette consumption in half without setting a cessation goal or follow-up plan.
- B.** Suggest switching to cigars or smokeless tobacco because vascular risk is substantially lower.
- C.** Defer cessation counseling until blood pressure and LDL goals have already been achieved.
- D.** Smoking cessation is a major secondary-prevention intervention and should be actively supported.
- E.** Advise continued smoking if nicotine withdrawal temporarily increases anxiety after stroke.

25. A patient has strong clinical suspicion for cerebral venous thrombosis, but the noncontrast CT is normal. Which imaging test should be obtained next?

- A.** Repeat noncontrast CT alone because a normal initial scan effectively excludes venous thrombosis.
- B.** CT venography or MR venography to directly assess the dural sinuses and cerebral venous system.
- C.** CT angiography focused on the cervical carotid bifurcations without venous-phase imaging.
- D.** Brain MRI without venographic sequences, relying only on parenchymal signal abnormalities.
- E.** Catheter arterial angiography as the preferred first-line test for dural sinus patency.

26. A patient with ICH develops signs of impending herniation from acute intracranial pressure elevation. Which statement about hyperosmolar therapy is most accurate?

- A.** Use continuous prophylactic hypertonic therapy before any clinical evidence of intracranial pressure elevation.
- B.** Treat acute herniation primarily with corticosteroids because edema around ICH is vasogenic.
- C.** Avoid hyperosmolar agents when ICH is present because they increase hematoma expansion.
- D.** Bolus hyperosmolar therapy may be used for acute ICP crises, not as routine continuous prophylaxis.
- E.** Use scheduled lumbar punctures to reduce intracranial pressure during an acute mass-effect crisis.

27. A 58-year-old man has six brief episodes of stereotyped face-arm-leg weakness over 24 hours, each resolving within 10 minutes. There are no cortical signs. MRI shows a tiny acute infarct near the internal capsule. Which syndrome is most likely?

- A.** Limb-shaking transient ischemic attacks from severe carotid hypoperfusion.
- B.** Focal motor seizures with transient postictal weakness.
- C.** Hemiplegic migraine with recurrent spreading positive sensory symptoms.
- D.** Recurrent embolic TIAs involving variable cortical territories.
- E.** Capsular warning syndrome from unstable perforator-territory ischemia.

28. A patient faces two medically reasonable treatment options with different tradeoffs between procedural risk and long-term benefit. What is the best communication approach?

- A.** Recommend the option with the highest average benefit without first eliciting the patient's goals.
- B.** Use shared decision-making that explains benefits, risks, uncertainty, and the patient's values.
- C.** Present numerical risks but avoid discussing how the tradeoffs relate to the patient's priorities.
- D.** Ask the family to select between the options even though the patient has intact decision-making capacity.
- E.** Describe both choices but withhold a clinical recommendation to avoid influencing the patient.

29. A young adult develops subacute psychiatric symptoms, seizures, dyskinesias, autonomic instability, and encephalopathy. Anti-NMDA receptor encephalitis is suspected. Which management principle is most appropriate?

- A.** Use antiseizure medication alone until antibody confirmation because immunotherapy may obscure testing.
- B.** Begin empiric acyclovir and defer autoimmune therapy until serial viral studies are negative.
- C.** Treat autonomic instability and seizures but wait for antibody confirmation before tumor evaluation.
- D.** Search for an associated tumor first and defer immunotherapy until definitive tumor pathology is available.
- E.** Start immunotherapy and search for an associated tumor while controlling seizures and autonomic instability.

30. A 69-year-old man develops acute left leg-predominant weakness, abulia, and urinary incontinence. Which vascular territory is most likely involved?

- A.** Right middle cerebral artery superior-division territory affecting lateral frontal motor cortex.
- B.** Left anterior cerebral artery territory affecting the dominant medial frontal lobe.
- C.** Right anterior cerebral artery territory involving medial frontal structures.
- D.** Right posterior cerebral artery territory affecting the thalamus and occipital cortex.

E. Right anterior choroidal artery territory affecting the posterior limb of the internal capsule.

31. A patient with suspected RCVS has characteristic thunderclap headaches, but the first CTA obtained on day 1 is normal. What is the best interpretation?

- A. Repeat vascular imaging if suspicion remains high despite an early normal study.
- B. Diagnose primary angiitis of the CNS because an early normal CTA favors inflammatory vasculitis.
- C. Exclude RCVS if catheter angiography is not abnormal during the first 24 hours.
- D. Treat the normal early CTA as definitive evidence against a vascular cause of thunderclap headache.
- E. Repeat only noncontrast CT because arterial caliber changes are not expected to evolve over time.

32. A city is evaluating a mobile stroke unit program with onboard CT and thrombolysis capability. What is the principal potential benefit of this model?

- A. Faster identification of large-vessel occlusion for destination triage without treating before hospital arrival.
- B. Performance of mechanical thrombectomy in the field for patients with proximal occlusions.
- C. Earlier diagnosis and treatment of eligible acute ischemic stroke before hospital arrival.
- D. Avoidance of emergency-department evaluation by discharging stroke mimics directly from the ambulance.
- E. Replacement of hospital stroke teams because definitive stroke care can be completed prehospital.

33. A patient taking anticoagulation develops sudden severe back pain followed by rapidly progressive paraplegia and a thoracic sensory level. MRI shows a spinal epidural hematoma compressing the cord. What is the best management?

- A. Reverse anticoagulation and observe closely because decompression is reserved for persistent deficits after 48 hours.
- B. Administer high-dose corticosteroids and repeat MRI after neurologic stabilization.

- C. Perform spinal angiography first to exclude a vascular malformation before relieving cord compression.
- D. Urgent reversal of anticoagulation and neurosurgical decompression when indicated.
- E. Begin therapeutic anticoagulation to prevent propagation of presumed epidural venous thrombosis.

34. A patient with a lobar ICH has unexplained fluctuating mental status and intermittent subtle facial twitching. Which test is most useful to evaluate for nonconvulsive seizures?

- A. A short routine EEG obtained only during a period of normal mental status.
- B. Repeat noncontrast head CT to determine whether the hematoma has become epileptogenic.
- C. Serum prolactin measurements after each episode of subtle facial twitching.
- D. Lumbar puncture to identify a CSF marker of nonconvulsive seizure activity.
- E. Continuous electroencephalographic monitoring to detect intermittent electrographic or nonconvulsive seizures.

35. A 70-year-old patient suddenly develops dysarthria, facial weakness, and marked clumsiness of one hand with little proximal weakness. MRI shows a small pontine infarct. Which lacunar syndrome is most likely?

- A. Pure motor hemiparesis from a posterior-limb internal capsular lacune.
- B. Ataxic hemiparesis from a pontine or capsular perforator infarct.
- C. Dysarthria-clumsy hand lacunar syndrome from a small deep infarct.
- D. Pure sensory stroke from a thalamic perforator infarct.
- E. Sensorimotor lacunar syndrome from adjacent thalamocapsular involvement.

36. A nonambulatory patient with acute intracerebral hemorrhage has no contraindication to mechanical venous thromboembolism prevention. Which method should be started early?

- A. Graduated compression stockings alone because they provide the same benefit as pneumatic compression.

- B.** Intermittent pneumatic compression devices started early for mechanical venous thromboembolism prevention.
- C.** Therapeutic-dose low-molecular-weight heparin on admission before hematoma stability is assessed.
- D.** Low-dose heparin immediately at presentation without regard to ongoing hematoma expansion.
- E.** Delay mechanical prophylaxis until pharmacologic prophylaxis can also be started.

37. A 60-year-old man with posterior circulation ischemia develops fluctuating consciousness, vertical gaze abnormalities, and bilateral visual symptoms without prominent lower cranial nerve deficits. Which syndrome is most likely?

- A.** Bilateral paramedian thalamic infarction from artery-of-Percheron occlusion without rostral midbrain involvement.
- B.** Top-of-the-basilar syndrome involving rostral brainstem and posterior cerebral territories.
- C.** Locked-in syndrome from destructive ventral pontine infarction with preserved vertical eye movements.
- D.** Lateral medullary syndrome with nucleus ambiguus dysfunction and crossed pain-temperature loss.
- E.** Bilateral occipital infarction causing cortical blindness without impaired consciousness or gaze abnormalities.

38. A patient with severe ICH has an ICH score of 4 on admission. The family asks whether this score should determine withdrawal of all life-sustaining treatment. What is the best response?

- A.** Use the ICH score to frame prognosis and recommend withdrawal whenever predicted mortality exceeds 50%.
- B.** Allow the score to determine treatment ceilings unless the family explicitly requests maximal therapy.
- C.** Ignore the score entirely because validated severity measures have no role in counseling families.
- D.** Use the score for severity context, but not as the sole basis for limiting treatment.

E. Delay goals-of-care discussions until neurologic outcome is certain enough to avoid prognostic uncertainty.

39. A patient has strong symptoms of obstructive sleep apnea and significant cardiopulmonary comorbidity. Which test most directly characterizes apneas, hypopneas, oxygenation, and sleep stages?

A. Home sleep-apnea testing despite substantial cardiopulmonary comorbidity and need for sleep staging.

B. Attended overnight polysomnography to measure respiratory events, oxygenation, and physiologic sleep stages.

C. Overnight pulse oximetry alone as a complete assessment of apnea-hypopnea burden and sleep stages.

D. Actigraphy to quantify sleep time and infer obstructive respiratory events.

E. Routine awake EEG to identify nocturnal upper-airway obstruction.

40. A patient can walk without assistance but cannot return to all previous work and leisure activities after a neurologic event. Which modified Rankin Scale level is most consistent with this description?

A. mRS 1: symptoms are present but there is no meaningful activity limitation.

B. mRS 2: independent in daily affairs despite inability to perform all previous activities.

C. mRS 3: moderate disability requiring some help but allowing independent walking.

D. mRS 4: unable to walk or attend to bodily needs without assistance.

E. mRS 5: bedridden and requiring constant nursing care and attention.

41. Which aneurysmal SAH patient is most likely to justify consideration of prophylactic antiseizure medication despite no witnessed seizure?

A. A low-grade SAH patient whose aneurysm is secured and who has no cortical injury.

B. A high-grade SAH patient with cortical infarction or intraparenchymal hemorrhage.

C. A neurologically intact patient with isolated cisternal blood and no hydrocephalus.

D. A patient with mild headache and normal consciousness after uncomplicated aneurysm treatment.

E. A patient with no seizure, no cortical blood, and no electrographic epileptiform activity.

42. A 44-year-old woman presents 18 hours after a sudden maximal-at-onset headache with neck stiffness. Noncontrast CT is negative, but clinical suspicion for subarachnoid hemorrhage remains high. Which next diagnostic step is appropriate?

- A. Perform further evaluation such as lumbar puncture when CT is nondiagnostic.
- B. Repeat noncontrast CT in several days and defer additional evaluation if the headache improves.
- C. Use CT angiography alone to exclude subarachnoid hemorrhage without assessing for blood in CSF.
- D. Treat as primary thunderclap headache because a negative CT at 18 hours excludes SAH.
- E. Obtain routine brain MRI without vascular or CSF evaluation as the definitive next test.

43. A 34-year-old woman develops severe optic neuritis followed months later by longitudinally extensive transverse myelitis. Which disorder is most likely?

- A. Multiple sclerosis with short-segment myelitis and typical periventricular lesions.
- B. MOG antibody-associated disease with recurrent optic neuritis and myelitis.
- C. Neuromyelitis optica spectrum disorder, classically associated with severe optic neuritis and longitudinally extensive myelitis.
- D. Acute disseminated encephalomyelitis with monophasic encephalopathy and multifocal deficits.
- E. Neurosarcoidosis causing optic neuropathy and longitudinally extensive cord inflammation.

44. A 48-year-old patient has a cortical embolic stroke and a nondiagnostic transthoracic echocardiogram. There is concern for left atrial appendage thrombus or aortic arch atheroma. Which cardiac test is more sensitive for these structures?

- A. Repeat transthoracic echocardiography with agitated saline as the best test for aortic arch plaque.
- B. Cardiac MRI as the preferred first study for left atrial appendage thrombus and arch atheroma.
- C. Transesophageal echocardiography to better visualize the left atrial appendage and aortic arch.
- D. Coronary CT angiography targeted to coronary stenosis rather than the atrial appendage and arch.

E. Prolonged rhythm monitoring, which detects atrial fibrillation but not structural embolic sources.

45. A rural emergency department has CT capability but no onsite vascular neurologist. Which strategy best expands timely stroke expertise while preserving local initial treatment?

A. Use a telestroke network for remote neurologic assessment and reperfusion decision support.

B. Transfer all potentially eligible patients before local CT so imaging is performed only at the receiving center.

C. Use local CT interpretation alone and make reperfusion decisions without a neurologic examination.

D. Restrict remote consultation to patients outside the treatment window because acute decisions require bedside specialists.

E. Treat only after an onsite neurologist arrives, even when that substantially delays reperfusion.

46. A patient with ischemic stroke is found to have a definite mobile left ventricular thrombus after recent myocardial infarction. Which secondary-prevention principle is most appropriate once intracranial bleeding risk is acceptable?

A. Use antiplatelet monotherapy because ventricular thrombus after myocardial infarction has low recurrent embolic risk.

B. Use short-term dual antiplatelet therapy as the preferred treatment for a mobile ventricular thrombus.

C. Delay antithrombotic therapy until repeat echocardiography proves the thrombus has resolved spontaneously.

D. Use therapeutic anticoagulation for the high-risk cardioembolic source.

E. Use a direct thrombin inhibitor only during hospitalization, then stop antithrombotic therapy at discharge.

47. A 51-year-old patient has subacute headaches, cognitive change, and multifocal ischemic lesions of different ages. Angiography shows irregular narrowing in multiple vascular territories, and CSF has a mild lymphocytic pleocytosis and elevated protein. Which diagnosis is most likely?

A. Reversible cerebral vasoconstriction syndrome, despite the inflammatory CSF and progressive subacute course.

- B.** Embolic stroke from atrial fibrillation causing multiple infarcts but not the inflammatory CSF profile.
- C.** Infectious meningovascular vasculitis from an untreated chronic CNS infection.
- D.** Intracranial atherosclerosis causing fixed focal stenoses rather than a multifocal inflammatory syndrome.
- E.** Primary angiitis of the central nervous system causing a progressive multifocal inflammatory cerebral arteriopathy.

48. A stroke patient with dysphagia aspirates during oral feeding and develops hypoxemia. Which prevention strategy would most directly have reduced this risk?

- A.** Screen swallowing before oral food, liquids, and medications.
- B.** Allow supervised water trials first and perform formal screening only if coughing occurs.
- C.** Place a nasogastric tube routinely before determining whether the patient can swallow safely.
- D.** Keep patients with facial weakness NPO for 72 hours without performing a swallowing assessment.
- E.** Use prophylactic antibiotics during oral feeding rather than changing the feeding plan.

49. A 73-year-old right-handed woman develops a right homonymous hemianopia and difficulty reading, but she can still write sentences normally. Which lesion best explains this syndrome?

- A.** Left posterior cerebral artery infarction involving occipital cortex and splenium.
- B.** Left middle cerebral artery inferior-division infarction causing fluent aphasia and alexia with agraphia.
- C.** Right posterior cerebral artery infarction causing a left homonymous hemianopia without alexia.
- D.** Left angular gyrus infarction causing alexia with agraphia rather than preserved writing.
- E.** Bilateral occipital infarction causing cortical blindness with preserved language.

50. A patient has a high clinical suspicion for giant cell arteritis with new transient visual symptoms. What should be done while confirmatory testing is arranged?

- A.** Wait for temporal-artery biopsy because glucocorticoids may reduce diagnostic yield too quickly to treat first.
- B.** Use aspirin monotherapy while arranging outpatient vascular imaging and rheumatology follow-up.
- C.** Start high-dose glucocorticoid treatment promptly rather than delaying therapy for confirmatory testing.
- D.** Begin a triptan because the headache phenotype is the most urgent symptom to treat.
- E.** Start anticoagulation for transient monocular ischemia while withholding immunosuppression.

51. A patient has a new generalized seizure on the day of aneurysmal subarachnoid hemorrhage. Which antiseizure approach is most consistent with current management?

- A.** Treat the presenting seizure and continue long-term antiseizure therapy routinely despite no recurrence or high-risk features.
- B.** Withhold treatment after the presenting seizure unless continuous EEG captures another electrographic event.
- C.** Use prophylactic phenytoin preferentially because it improves functional outcome after aneurysmal SAH.
- D.** Treat the new-onset seizure, generally with a short course when no ongoing indication persists.
- E.** Continue antiseizure therapy through the entire delayed-ischemia period even when no recurrent seizure or high-risk feature persists.

52. A postpartum woman has recurrent thunderclap headaches and angiographic multifocal vasoconstriction without evidence of aneurysmal SAH or CNS infection. Which management principle is most appropriate?

- A.** Use high-dose glucocorticoids because the angiographic narrowing usually reflects an inflammatory vasculitis.
- B.** Start therapeutic anticoagulation because the segmental narrowing is most often caused by multifocal emboli.
- C.** Use routine induced hypertension during the headache phase to overcome all areas of arterial narrowing.

- D.** Continue serotonergic or sympathomimetic triggers if symptoms improve with analgesics.
- E.** Remove vasoactive triggers, provide supportive care, and avoid glucocorticoids.

53. A 68-year-old man with long-standing poorly controlled hypertension develops sudden left hemiparesis and decreased alertness. CT shows an acute right putaminal hemorrhage. Which underlying small-vessel pathology is most likely?

- A.** Cerebral amyloid angiopathy involving cortical and leptomeningeal arterioles.
- B.** Hypertensive arteriolosclerosis of deep perforating arteries.
- C.** A ruptured deep arteriovenous malformation supplying the basal ganglia.
- D.** Moyamoya-associated fragile collateral vessels in the deep perforator territory.
- E.** A hemorrhagic venous infarct from deep cerebral venous thrombosis.

54. A 66-year-old patient has left hemispatial neglect, extinction, constructional apraxia, and mild left face-arm weakness. Which lesion is most likely?

- A.** Left middle cerebral artery infarction involving dominant parietal association cortex.
- B.** Right anterior cerebral artery infarction involving medial frontal motor and behavioral regions.
- C.** Right MCA infarction involving nondominant parietal cortex.
- D.** Right posterior cerebral artery infarction involving occipital cortex and posterior thalamus.
- E.** Left posterior cerebral artery infarction involving dominant occipital and splenial regions.

55. A 36-year-old woman has recurrent ischemic strokes and persistently positive high-risk antiphospholipid antibodies meeting criteria for antiphospholipid syndrome. Which long-term strategy is most appropriate?

- A.** Use long-term vitamin K antagonist anticoagulation for arterial thrombosis prevention.
- B.** Use a direct oral anticoagulant as preferred therapy for high-risk triple-positive arterial APS.
- C.** Use aspirin monotherapy despite recurrent arterial events meeting criteria for APS.
- D.** Use long-term dual antiplatelet therapy as an equivalent substitute for anticoagulation in high-risk APS.

E. Withhold antithrombotic therapy after antibody persistence is confirmed unless venous thrombosis also occurs.

56. A patient with high-grade aneurysmal SAH cannot reliably participate in serial neurologic examinations. Which monitoring approach can help detect vasospasm or delayed cerebral ischemia?

A. Perform scheduled catheter angiography daily because noninvasive monitoring cannot detect evolving vasospasm.

B. Use transcranial Doppler alone and avoid perfusion or electrographic monitoring when the examination is unreliable.

C. Use multimodal surveillance such as TCD, CTA/CT perfusion, EEG, or invasive monitoring as appropriate.

D. Rely on serum sodium and fever curves as surrogate measures for delayed cerebral ischemia.

E. Obtain routine noncontrast CT only, because vascular and perfusion studies do not add useful information.

57. TEE in a patient with embolic stroke shows a complex aortic arch plaque thicker than 4 mm with mobile components. Why is this finding clinically important?

A. It is mainly a marker of systemic atherosclerosis but is not considered a plausible embolic source.

B. Its mobile component suggests infective endocarditis rather than complex aortic atheroma.

C. It can serve as a high-risk artery-to-artery embolic source.

D. Its presence establishes a lacunar mechanism when the infarct is cortical.

E. It indicates a need for carotid revascularization even when cervical carotid imaging is normal.

58. Angiography after a lobar hemorrhage reveals a compact tangle of abnormal vessels with direct arterial-to-venous shunting and no intervening capillary bed. Which lesion is present?

A. Brain arteriovenous malformation with a compact nidus and direct high-flow arterial-to-venous shunting.

B. Cavernous malformation with low-flow sinusoidal vascular channels and no arterial shunt.

- C. Dural arteriovenous fistula with meningeal arterial supply and dural venous drainage.
- D. Developmental venous anomaly composed of radially oriented medullary veins.
- E. Capillary telangiectasia with microscopic low-flow vascular channels.

59. A patient consistently ignores stimuli on the left side of space despite intact primary sensation. Which cortical region is most commonly involved?

- A. Left inferior parietal lobule in the dominant hemisphere.
- B. Right inferior parietal cortex in the nondominant hemisphere, producing contralateral hemispatial neglect.
- C. Right primary visual cortex causing a homonymous field deficit rather than spatial neglect.
- D. Bilateral dorsolateral prefrontal cortex causing executive dysfunction without hemispatial neglect.
- E. Right cerebellar hemisphere causing ipsilateral limb dysmetria rather than neglect.

60. A patient has ongoing generalized convulsive status epilepticus. What is the appropriate initial medication strategy?

- A. Give an intravenous longer-acting antiseizure medication first and reserve benzodiazepine for recurrence.
- B. Wait for EEG confirmation before giving medication if generalized convulsions are visibly ongoing.
- C. Use an anesthetic infusion as initial therapy before a benzodiazepine and second-line antiseizure drug.
- D. Give an oral antiseizure loading dose while arranging IV access and observing the convulsions.
- E. Give a rapid-acting benzodiazepine followed promptly by a longer-acting antiseizure medication.

61. A 15-year-old with a severe acute neurologic deficit has a proximal intracranial large-vessel occlusion and favorable imaging. Which current principle is most accurate?

- A. Endovascular thrombectomy may be considered in carefully selected pediatric patients at experienced centers.

- B.** Use IV thrombolysis as the only reperfusion option because endovascular therapy is not used in children.
- C.** Defer reperfusion because pediatric arterial occlusions usually recanalize spontaneously with supportive care.
- D.** Base treatment solely on chronologic age rather than occlusion site, deficit severity, or imaging.
- E.** Use surgical embolectomy preferentially because catheter thrombectomy has no pediatric experience.

62. A 69-year-old man had a noncardioembolic ischemic stroke six months ago and completed an appropriate short course of dual antiplatelet therapy. What is the usual long-term antithrombotic approach?

- A.** Transition to oral anticoagulation despite no atrial fibrillation, mechanical valve, or other cardioembolic source.
- B.** Continue aspirin plus clopidogrel indefinitely because recurrent ischemic risk remains lifelong.
- C.** Stop antithrombotic therapy once the initial short course of dual therapy is completed.
- D.** Use low-dose anticoagulation together with aspirin as the routine long-term regimen.
- E.** Continue a single antiplatelet agent for secondary prevention.

63. A patient with suspected anterior-circulation large-vessel occlusion undergoes noncontrast CT. The team calculates an ASPECTS value. What does ASPECTS primarily estimate?

- A.** The extent of early ischemic change within the MCA territory.
- B.** The volume of salvageable penumbra on perfusion imaging.
- C.** The quality of leptomeningeal collateral filling on multiphase angiography.
- D.** The angiographic grade of intracranial reperfusion after thrombectomy.
- E.** The bedside severity of neurologic deficit measured by the NIH Stroke Scale.

64. A patient is admitted with aneurysmal subarachnoid hemorrhage after the aneurysm has been secured. Which medication should be started early to improve neurologic outcome related to delayed cerebral ischemia?

- A.** Enteral nimodipine after aneurysmal subarachnoid hemorrhage.
- B.** Intravenous magnesium infusion to prevent angiographic vasospasm and improve outcome.
- C.** High-intensity statin therapy started solely to prevent delayed cerebral ischemia.
- D.** Prophylactic antiseizure medication continued throughout the vasospasm-risk period.
- E.** Systemic glucocorticoids to reduce arterial inflammation and delayed vasoconstriction.

65. A 65-year-old woman presents within hours of a high-risk TIA with no hemorrhage and no indication for anticoagulation. Which antiplatelet strategy best reduces early recurrent ischemic risk?

- A.** Aspirin monotherapy from presentation because adding a second antiplatelet provides no early benefit.
- B.** Aspirin plus clopidogrel continued indefinitely to maintain the early reduction in recurrence.
- C.** Short-term aspirin plus clopidogrel followed by single antiplatelet therapy.
- D.** Empiric oral anticoagulation while outpatient rhythm monitoring is arranged despite no cardioembolic indication.
- E.** Delay antiplatelet therapy until MRI confirms a completed infarction rather than a high-risk TIA.

66. A patient with abrupt aphasia undergoes MRI 90 minutes after onset. Which MRI sequence is most sensitive for detecting early acute ischemic infarction?

- A.** FLAIR, because vasogenic signal change reliably precedes diffusion restriction in acute ischemia.
- B.** Diffusion-weighted imaging with corresponding low apparent diffusion coefficient.
- C.** Susceptibility-weighted imaging, because acute ischemia is first detected by hemosiderin deposition.
- D.** T1-weighted postcontrast imaging, because cortical enhancement is immediate after arterial occlusion.
- E.** Arterial spin labeling, because perfusion abnormality alone establishes irreversible infarction.

67. Noncontrast CT obtained 40 minutes after onset of a severe right hemispheric stroke shows a hyperdense right M1 segment without visible parenchymal hypodensity. What does this finding most likely represent?

- A.** Slow arterial flow distal to a chronic severe stenosis without an intraluminal clot.
- B.** Calcified atherosclerotic plaque in the M1 segment rather than acute occlusive material.
- C.** Acute subarachnoid blood tracking along the sylvian fissure around a patent artery.
- D.** Acute thrombus within the middle cerebral artery producing the hyperdense M1 arterial sign.
- E.** Residual iodinated contrast from prior angiography producing transient arterial hyperattenuation.

68. A 28-year-old postpartum woman has headache, seizure, and a parasagittal hemorrhagic lesion that does not respect a typical arterial territory. Which cause should be specifically considered?

- A.** Hypertensive arteriolar rupture producing a typical deep putaminal hematoma.
- B.** Cerebral amyloid angiopathy producing a peripheral lobar hematoma with lobar microbleeds.
- C.** Cerebral venous thrombosis with hemorrhagic venous infarction.
- D.** Ruptured arteriovenous malformation producing a compact nidus and arterialized draining vein.
- E.** Hemorrhagic transformation of an arterial embolic infarct conforming to an MCA branch territory.

69. A patient with basilar artery thrombosis is awake and can move only the eyes vertically and blink; there is quadriplegia and anarthria. Which structure is primarily damaged?

- A.** Bilateral paramedian thalami causing impaired arousal and vertical-gaze abnormalities.
- B.** Dorsal pons causing gaze palsy, sensory deficits, and cranial-nerve findings with preserved strength.
- C.** Bilateral occipital lobes causing cortical blindness with preserved motor output.
- D.** Cerebellar hemispheres causing severe ataxia without quadriplegia or anarthria.
- E.** The ventral pons with disruption of corticospinal and corticobulbar tracts.

70. A malnourished patient with alcohol use disorder develops confusion, gait ataxia, and ophthalmoplegia. Which deficiency is most likely?

- A.** Vitamin B12 deficiency causing subacute combined degeneration and sensory ataxia.
- B.** Folate deficiency causing macrocytic anemia without the classic ophthalmoplegia syndrome.
- C.** Niacin deficiency causing pellagra with dermatitis, diarrhea, and cognitive changes.
- D.** Vitamin E deficiency causing a chronic spinocerebellar syndrome and peripheral neuropathy.
- E.** Thiamine deficiency causing Wernicke encephalopathy.

71. A patient with active pancreatic cancer has markedly elevated D-dimer and scattered acute infarcts in both hemispheres and the cerebellum. Which pattern most strongly suggests cancer-associated hypercoagulable stroke?

- A.** A single deep lacunar infarct in a perforator distribution with longstanding hypertension.
- B.** A unilateral border-zone pattern after a documented episode of severe systemic hypotension.
- C.** A territorial cortical infarct downstream from a severe ipsilateral carotid stenosis.
- D.** Multiple embolic infarcts across several arterial territories.
- E.** A solitary small cortical infarct with a clearly documented competing cardioembolic source.

72. CTA of the neck in a middle-aged woman with cervical artery dissection shows alternating stenosis and dilation in the mid-distal cervical internal carotid artery, away from the atherosclerotic bulb. Which associated arteriopathy is most likely?

- A.** Fibromuscular dysplasia, a nonatherosclerotic arteriopathy that can produce mid-distal cervical arterial beading.
- B.** Atherosclerotic disease, which characteristically centers on the carotid bulb and proximal internal carotid artery.
- C.** Segmental arterial mediolysis, typically involving visceral arteries with aneurysm or dissection.
- D.** Moyamoya angiopathy, which affects the terminal intracranial internal carotid arteries.
- E.** Reversible cerebral vasoconstriction syndrome, which affects intracranial arterial caliber dynamically.

73. A patient develops an anterior STEMI with severe apical akinesis and then has an embolic ischemic stroke. Echocardiography shows a mobile apical thrombus. What is the likely stroke mechanism?

- A.** Artery-to-artery embolism from an ulcerated aortic arch plaque.
- B.** Paradoxical embolism through a patent foramen ovale from a lower-extremity venous thrombus.
- C.** Small-vessel occlusion from lipohyalinosis in a deep perforating artery.
- D.** Intracranial atherosclerotic plaque rupture with local artery-to-artery embolism.
- E.** Cardioembolism from left ventricular mural thrombus.

74. MRI of a patient with seizures shows a well-circumscribed 'popcorn-like' lesion with mixed-signal blood products and a hemosiderin rim, but no prominent feeding artery on angiography. Which lesion is most likely?

- A.** Cerebral cavernous malformation containing blood products of different ages with a hemosiderin rim.
- B.** Brain arteriovenous malformation with high-flow arterial feeders and an early draining vein.
- C.** Hemorrhagic metastasis with surrounding vasogenic edema and solid enhancing tissue.
- D.** Thrombosed saccular aneurysm adjacent to a major intracranial artery.
- E.** Developmental venous anomaly with a caput-medusae pattern of draining medullary veins.

75. A 60-year-old woman has a TIA referable to a 75% symptomatic intracranial MCA stenosis. What is the preferred initial prevention strategy?

- A.** Intracranial angioplasty and stenting as routine first-line therapy before an adequate medical regimen.
- B.** Aggressive medical management with risk-factor control and short-term dual antiplatelet therapy.
- C.** Carotid endarterectomy because surgical plaque removal is preferred for symptomatic intracranial MCA stenosis.
- D.** Long-term anticoagulation because warfarin is more effective than antiplatelet therapy for symptomatic ICAD.

E. Single antiplatelet therapy alone without intensive blood-pressure, lipid, lifestyle, or diabetes management.

76. A patient has progressive multifocal neurologic deficits, inflammatory CSF, and angiographic abnormalities concerning for primary CNS vasculitis, but the diagnosis remains uncertain before long-term immunosuppression. Which test can provide the most definitive tissue diagnosis?

A. Repeat catheter angiography alone, because characteristic stenoses are pathognomonic for primary CNS vasculitis.

B. A normal systemic inflammatory marker panel, which can definitively exclude a primary CNS-limited vasculitis.

C. CSF oligoclonal bands, which provide histologic confirmation of vessel-wall inflammation.

D. High-resolution vessel-wall MRI, which can support the diagnosis but cannot provide tissue confirmation.

E. Targeted brain and leptomeningeal biopsy when clinically feasible.

77. A patient with metastatic adenocarcinoma develops recurrent infarcts in multiple arterial territories. Echocardiography shows small sterile-appearing vegetations on the mitral valve, and blood cultures remain negative. Which mechanism is most likely?

A. Culture-negative infective endocarditis causing septic vegetations despite persistently sterile blood cultures and no infection signs.

B. Atrial fibrillation causing left atrial appendage thrombus rather than sterile valvular vegetations.

C. Paradoxical embolism through a PFO from cancer-associated venous thrombosis.

D. Nonbacterial thrombotic endocarditis causing systemic embolization.

E. Tumor embolization from direct intracardiac extension of the adenocarcinoma.

78. A patient with severe CVT worsens neurologically despite appropriate anticoagulation and develops impending herniation from extensive venous infarction. Which statement is most accurate?

A. Continue anticoagulation alone despite progressive herniation because rescue procedures are rarely needed in CVT.

- B.** Stop anticoagulation and use antiplatelet therapy while waiting for spontaneous venous recanalization.
- C.** Use systemic thrombolysis routinely before considering any catheter-based or surgical rescue strategy.
- D.** Use high-dose corticosteroids to reduce venous clot burden and reverse sinus thrombosis.
- E.** Endovascular therapy or decompressive surgery may be considered in selected deteriorating patients.

79. A 71-year-old woman awakens with aphasia and right hemiparesis. She was last known well 8 hours earlier. MRI shows a small diffusion-restricted left insular lesion without corresponding FLAIR hyperintensity. Which finding most strongly supports consideration of intravenous thrombolysis despite unknown onset?

- A.** A matched DWI-FLAIR lesion indicating that tissue injury is established and likely older.
- B.** A diffusion-positive, FLAIR-negative mismatch suggesting recent infarction.
- C.** A normal diffusion study with isolated chronic FLAIR white-matter hyperintensities.
- D.** A large diffusion lesion with extensive corresponding FLAIR hyperintensity and mass effect.
- E.** A normal MRI with no acute lesion despite persistent disabling neurologic deficits.

80. A 66-year-old patient has a 20-mL cerebellar hemorrhage with worsening consciousness and brainstem compression. What is the best management?

- A.** External ventricular drainage alone even though there is substantial cerebellar mass effect and brainstem compression.
- B.** Medical treatment with hyperosmolar therapy as definitive management despite worsening consciousness.
- C.** Immediate surgical evacuation, with CSF diversion if hydrocephalus is present.
- D.** Observation with serial CT because surgery is reserved for supratentorial rather than cerebellar hemorrhage.
- E.** Stereotactic aspiration delayed until the hematoma has organized over several days.

81. A patient has a convincing transient brainstem ischemic syndrome, but MRI diffusion imaging performed very early is negative. Which interpretation is most appropriate?

- A.** A negative early DWI does not fully exclude a small posterior-circulation infarct.
- B.** A normal early diffusion study excludes tissue ischemia and makes vascular secondary prevention unnecessary.
- C.** The negative study establishes a peripheral vestibular diagnosis when the symptoms localize to the brainstem.
- D.** Posterior-circulation infarcts should be visible on FLAIR before DWI becomes abnormal.
- E.** Repeat MRI has no diagnostic value because diffusion sensitivity does not change with time after onset.

82. A patient with a small right thalamic infarct initially has left hemisensory loss. Weeks later, light touch on the left side triggers severe burning pain. What complication has developed?

- A.** Complex regional pain syndrome caused by peripheral autonomic dysfunction of the affected limb.
- B.** Painful small-fiber neuropathy producing a peripheral length-dependent sensory pain syndrome.
- C.** Cervical radiculopathy producing dermatomal neuropathic pain provoked by neck movement.
- D.** Central post-stroke pain due to thalamic sensory pathway injury.
- E.** Spasticity-related musculoskeletal pain from upper-motor-neuron injury rather than abnormal sensory processing.

83. A patient with aneurysmal SAH has no evidence of hypovolemia. Which fluid strategy is preferred for prevention of delayed cerebral ischemia?

- A.** Use prophylactic hypervolemia to increase cerebral blood flow before any symptoms of delayed ischemia.
- B.** Maintain euvolemia rather than routine prophylactic hypervolemia.
- C.** Restrict isotonic fluids to minimize cerebral edema throughout the vasospasm-risk period.
- D.** Use diuresis to achieve a negative fluid balance as a strategy for preventing vasospasm.

E. Target routine hypertension and hypervolemia together even in patients without delayed cerebral ischemia.

84. A 68-year-old man develops sudden aphasia and right face-arm weakness 90 minutes ago. Noncontrast CT shows no hemorrhage, glucose is normal, and blood pressure is 176/96 mm Hg. CTA shows a left M2 occlusion. His deficits are disabling. Which is the best immediate reperfusion treatment while thrombectomy eligibility is being assessed?

A. Give intravenous thrombolysis without delaying endovascular evaluation.

B. Withhold IV thrombolysis because the visible M2 occlusion makes catheter reperfusion the preferred initial treatment.

C. Obtain perfusion MRI before thrombolysis even though the patient is within the standard treatment window.

D. Use aspirin plus clopidogrel instead of thrombolysis because the occlusion is in a medium-vessel branch.

E. Lower systolic pressure to below 140 mm Hg before administering otherwise indicated thrombolysis.

85. A patient cannot receive iodinated contrast because of a prior severe anaphylactic reaction. MRI is immediately available and a noninvasive vascular study is needed. Which study can evaluate the intracranial arteries without iodinated contrast?

A. Noncontrast head CT, which can exclude hemorrhage but does not provide arterial lumen imaging.

B. CT angiography after steroid and antihistamine premedication despite prior severe anaphylaxis.

C. Time-of-flight magnetic resonance angiography, which can depict intracranial arteries without iodinated contrast.

D. Contrast-enhanced MRA using gadolinium, even though a noncontrast vascular sequence is available.

E. Digital subtraction angiography with iodinated contrast as the preferred noninvasive alternative.

86. A hospital stroke committee identifies repeated delays caused by waiting for routine chemistry results before treating otherwise eligible patients whose point-of-care glucose is normal and who have no reason to suspect coagulopathy. What is the best quality-improvement response?

- A.** Continue obtaining the full routine chemistry panel first because laboratory completeness should take priority over treatment time.
- B.** Require formal central-laboratory glucose confirmation even when point-of-care testing is normal and reliable.
- C.** Remove protocolized stroke alerts and allow each clinician to decide independently which tests are needed.
- D.** Delay imaging until routine laboratory testing is complete so all data are available simultaneously.
- E.** Redesign the pathway to avoid unnecessary testing delays before time-sensitive reperfusion.

87. A regional EMS system has one primary stroke center 10 minutes away and an EVT-capable comprehensive center 22 minutes away. A patient has a severe suspected large-vessel occlusion syndrome. Which systems principle is most appropriate?

- A.** Send the patient to the nearest center based on driving time alone, without considering suspected LVO or transfer performance.
- B.** Use a regional triage protocol that weighs direct EVT-center transport against transfer delays.
- C.** Require remote neurologist confirmation of LVO before EMS can leave the scene for either hospital.
- D.** Bypass the primary center whenever stroke is suspected even when LVO likelihood is low and added travel is substantial.
- E.** Prefer the nearest primary center even when secondary transfer times are predictably prolonged.

88. Two patients have similar M1 occlusions and time from onset, but one has robust leptomeningeal collateral filling distal to the occlusion. What is the principal physiologic significance of good collaterals?

- A.** They indicate spontaneous durable recanalization of the occluded artery before treatment.
- B.** They prevent hemorrhagic transformation by lowering downstream perfusion pressure after reperfusion.

- C. They prove that the ischemic tissue has already completed infarction and cannot be salvaged.
- D. They can preserve penumbral tissue by sustaining blood flow around the occlusion.
- E. They identify a venous rather than arterial cause of the perfusion abnormality.

89. A trial reports an event rate of 20% with standard therapy and 12% with a new treatment. What is the absolute risk reduction?

- A. 12 percentage points, calculated from the event rate in the treatment group.
- B. An absolute risk reduction of 8 percentage points, calculated as 20% minus 12%.
- C. 40 percentage points, the relative reduction expressed as an absolute difference.
- D. 60 percentage points, representing the proportion of events that remain after treatment.
- E. 32 percentage points, obtained by adding the two observed event rates.

90. A 72-year-old man has an embolic-appearing ischemic stroke and persistent nonvalvular atrial fibrillation. No contraindication to anticoagulation is present. Which long-term strategy most directly reduces recurrent cardioembolic stroke risk?

- A. Oral anticoagulation rather than antiplatelet therapy alone for long-term prevention of atrial-fibrillation cardioembolism.
- B. Aspirin plus clopidogrel indefinitely because dual antiplatelet therapy provides equivalent cardioembolic protection.
- C. Left atrial appendage closure as routine first-line therapy before a trial of anticoagulation.
- D. Aspirin alone because anticoagulation is reserved for patients with a second embolic event.
- E. No antithrombotic therapy if the infarct has clinically stabilized and no intracardiac thrombus is seen.

91. A focal lesion damages the left corticospinal tract in the posterior limb of the internal capsule. Which motor deficit is expected?

- A. Left-sided face-arm-leg weakness from disruption of descending motor fibers before decussation.

- B.** Right-sided loss of vibration and proprioception without weakness from thalamocortical sensory-fiber injury.
- C.** Right-sided limb ataxia without weakness from selective disruption of cerebellothalamic pathways.
- D.** Right-sided weakness affecting the face, arm, and leg below the lesion.
- E.** Bilateral leg-predominant weakness from injury to medial frontal motor pathways.

92. Cerebral angiography in a young adult with recurrent ischemic events shows progressive stenosis of the terminal internal carotid arteries and a fine network of basal collateral vessels. Which diagnosis is most likely?

- A.** Reversible cerebral vasoconstriction syndrome with transient multifocal intracranial narrowing.
- B.** Fibromuscular dysplasia causing beading of the mid-distal extracranial cervical arteries.
- C.** Primary CNS vasculitis causing irregular multifocal stenoses with inflammatory CSF findings.
- D.** Moyamoya angiopathy with progressive terminal internal carotid stenosis.
- E.** Intracranial atherosclerotic disease causing focal plaque-related stenosis without basal collateral networks.

93. A patient asks whether high-dose vitamin therapy should routinely replace standard vascular prevention after an ischemic stroke because homocysteine is mildly elevated. What is the best response?

- A.** Treat the mild homocysteine elevation as the dominant stroke mechanism and replace antithrombotic therapy with vitamins.
- B.** Use high-dose B-vitamin therapy as a substitute for intensive lipid and blood-pressure management.
- C.** Assume mild elevation establishes an inherited thrombophilia and pursue lifelong anticoagulation.
- D.** Stop statin therapy while vitamin therapy is used because combined risk-factor treatment is unnecessary.
- E.** Standard evidence-based vascular prevention remains primary; vitamin therapy is not a substitute.

94. A 35-year-old woman has recurrent ischemic strokes and a persistent netlike violaceous skin pattern on the trunk and limbs. Antiphospholipid antibodies are intermittently positive. Which syndrome should be considered?

- A.** Antiphospholipid syndrome without a characteristic persistent livedo racemosa phenotype.
- B.** Sneddon syndrome with livedo racemosa and recurrent ischemic cerebrovascular events.
- C.** Polyarteritis nodosa causing systemic medium-vessel vasculitis and nodular skin lesions.
- D.** CADASIL causing migraine, subcortical strokes, and characteristic white-matter disease.
- E.** Reversible cerebral vasoconstriction syndrome causing thunderclap headache and transient arterial narrowing.

95. A therapy reduces a clinically important outcome from 10% to 5%. What is the approximate number needed to treat to prevent one event?

- A.** 10, based on the treated event rate rather than the absolute risk reduction.
- B.** 5, calculated as the reciprocal of the control event rate.
- C.** Approximately 20 patients, calculated as the reciprocal of the 5% absolute risk reduction.
- D.** 50, using the 2% relative difference between the groups.
- E.** 100, treating the 5-percentage-point reduction as a 1% absolute benefit.

96. A patient with acute spontaneous intracerebral hemorrhage undergoes CTA. A small focus of contrast enhancement is seen within the hematoma on arterial-phase imaging. What does this 'spot sign' suggest?

- A.** A thrombosed intraparenchymal vessel suggesting that active bleeding has already stopped.
- B.** A small enhancing vascular malformation that definitively identifies the cause of the hemorrhage.
- C.** A benign focus of calcification within the hematoma without prognostic significance.
- D.** Contrast filling of a venous structure indicating that the lesion is a hemorrhagic venous infarct.
- E.** Active contrast extravasation and increased risk of hematoma expansion.

97. A patient with aneurysmal SAH becomes progressively somnolent. CT shows enlarging ventricles and transependymal CSF flow. What is the most appropriate treatment?

- A.** Serial lumbar punctures to lower CSF pressure while avoiding ventricular instrumentation.
- B.** External ventricular drainage for acute symptomatic hydrocephalus.
- C.** Hyperosmolar therapy alone because CSF diversion does not address SAH-related hydrocephalus.
- D.** Delayed ventriculoperitoneal shunting as the immediate first intervention for acute deterioration.
- E.** Observation with repeat CT because acute hydrocephalus often resolves before causing clinical decline.

98. A 37-year-old patient has recurrent embolic strokes in multiple territories, constitutional symptoms, and a mobile left atrial mass attached to the interatrial septum. What is the most likely diagnosis?

- A.** Left atrial appendage thrombus related to occult atrial fibrillation rather than a septal-attached mass.
- B.** Papillary fibroelastoma arising from a cardiac valve rather than the interatrial septum.
- C.** Infective endocarditis producing valvular vegetations with systemic inflammatory findings.
- D.** Nonbacterial thrombotic endocarditis causing small sterile valvular vegetations.
- E.** Left atrial myxoma causing recurrent systemic embolization.

99. Before a ruptured aneurysm is secured, which hemodynamic principle is most appropriate?

- A.** Avoid severe hypertension and large blood-pressure variability while maintaining adequate cerebral perfusion.
- B.** Use induced hypertension before aneurysm occlusion to augment cerebral perfusion despite the unsecured source.
- C.** Target sustained low arterial pressures even if cerebral perfusion becomes pressure dependent.
- D.** Defer treatment of substantial hypertension until delayed cerebral ischemia develops.
- E.** Use routine prophylactic hypervolemia together with elevated arterial pressure targets before aneurysm treatment.

100. A 64-year-old woman has an embolic-appearing infarct, but prolonged rhythm monitoring, vascular imaging, and cardiac evaluation reveal no definite source. The event is classified as embolic stroke of undetermined source. Which strategy is recommended?

- A.** Begin a direct oral anticoagulant empirically because the embolic appearance strongly implies occult atrial fibrillation.
- B.** Use ticagrelor monotherapy specifically because ESUS is a distinct indication for empiric P2Y₁₂ inhibition.
- C.** Use standard antiplatelet-based secondary prevention rather than empiric anticoagulation.
- D.** Use long-term dual antiplatelet therapy for all ESUS patients while repeating the etiologic evaluation.
- E.** Withhold antithrombotic therapy until a definite embolic source is ultimately identified.

101. A patient has brief episodes of vertigo triggered by rolling in bed. Examination between episodes is normal, and positional testing produces a characteristic fatigable torsional nystagmus. What is the best treatment?

- A.** A canalith-repositioning maneuver such as the Epley maneuver.
- B.** Vestibular suppressants taken continuously because they correct the underlying canalith disorder.
- C.** Corticosteroids as treatment for presumed inflammation of the vestibular nerve.
- D.** Vestibular rehabilitation alone without a repositioning maneuver despite a positive positional test.
- E.** Antiplatelet therapy for presumed posterior-circulation ischemia despite the classic positional syndrome.

102. A stroke survivor repeatedly misses antihypertensive and statin doses because prescriptions are confusing and transportation to follow-up is unreliable. Which intervention is most likely to improve secondary prevention?

- A.** Increase medication intensity before determining why the existing regimen is not being taken.
- B.** Provide written education alone without addressing transportation or regimen complexity.
- C.** Use multidisciplinary care that addresses medication simplification and social barriers.

D. Switch every medication to a different drug class without discussing the adherence barriers.

E. Schedule more frequent clinic visits without addressing the transportation problem or medication burden.

103. A patient develops sudden vertigo, ipsilateral facial paralysis, decreased lacrimation, ipsilateral hearing loss, ataxia, and contralateral body pain-temperature loss. Which territory is most likely affected?

A. Posterior inferior cerebellar artery territory of the lateral medulla, typically with nucleus ambiguus dysfunction.

B. Anterior inferior cerebellar artery territory restricted to the cerebellar hemisphere without pontine involvement.

C. Superior cerebellar artery territory causing ipsilateral ataxia but not facial paralysis or hearing loss.

D. Basilar perforator infarction producing a pure motor pontine syndrome without vestibulocochlear findings.

E. Anterior inferior cerebellar artery territory of the lateral caudal pons.

104. A 65-year-old patient has recurrent painless monocular vision loss described as a curtain descending over one eye for five minutes, with complete recovery. Which process is most likely?

A. Transient retinal ischemia from the ipsilateral carotid circulation.

B. Occipital lobe ischemia causing a homonymous hemianopic field deficit rather than monocular loss.

C. Migraine visual aura causing slowly spreading positive binocular phenomena.

D. Retinal detachment causing persistent rather than fully reversible monocular visual loss.

E. Optic neuritis causing painful subacute visual loss over hours to days rather than minutes.

105. A patient with spontaneous ICH has a preexisting do-not-resuscitate order that applies to cardiopulmonary arrest. Which interpretation is most appropriate during acute stroke care?

A. Interpret the DNR order as limiting invasive procedures but not medications or monitoring.

- B.** Use DNR status as evidence that intensive stroke-unit care is inconsistent with the patient's wishes.
- C.** A DNR order does not automatically mean other appropriate treatments should be withheld.
- D.** Assume neurosurgical treatment is excluded unless the DNR order is formally rescinded.
- E.** Defer goals-of-care clarification because DNR status already defines the full scope of desired treatment.

106. A patient with cervical artery dissection has remained clinically stable on antithrombotic treatment. Which follow-up principle is appropriate?

- A.** Stop antithrombotic therapy as soon as pain resolves because symptoms reliably indicate arterial healing.
- B.** Continue therapy for a finite period and reassess healing and recurrence risk with follow-up imaging.
- C.** Continue full-dose anticoagulation indefinitely despite uncomplicated healing and no recurrent ischemia.
- D.** Use serial catheter angiography frequently until the dissection is no longer visible.
- E.** Base duration only on the initial infarct size without reassessing vessel healing or recurrent risk.

107. A 65-year-old man presents 10 hours after onset of dysarthria, quadriparesis, and decreased alertness. CTA shows basilar artery occlusion, and NIHSS is 18. What treatment should be strongly considered?

- A.** IV thrombolysis alone is sufficient because endovascular treatment has no established role beyond six hours in basilar occlusion.
- B.** Endovascular thrombectomy for the basilar artery occlusion in this severely affected patient within the treatment window.
- C.** Use supportive care alone because posterior-circulation infarction is already completed after six hours.
- D.** Perform decompressive suboccipital craniectomy before attempting arterial reperfusion.
- E.** Use therapeutic anticoagulation as the preferred acute recanalization strategy for basilar artery occlusion.

108. A patient with suspected venous thrombosis becomes somnolent. MRI shows bilateral thalamic edema and infarction. Which venous structure is most likely thrombosed?

- A.** Superior sagittal sinus thrombosis affecting superficial parasagittal cortical drainage.
- B.** Cavernous sinus thrombosis producing orbital congestion and cranial neuropathies.
- C.** Transverse-sigmoid sinus thrombosis causing headache and papilledema without deep thalamic injury.
- D.** Internal cerebral arterial perforator occlusion producing a unilateral thalamic lacune.
- E.** Deep cerebral venous thrombosis involving the straight sinus.

109. A 72-year-old man taking warfarin presents with a large intracerebral hemorrhage and INR 3.2. What is the best immediate reversal strategy?

- A.** Fresh frozen plasma alone despite immediate access to a four-factor prothrombin complex concentrate.
- B.** Vitamin K alone because factor replacement is unnecessary once reversal therapy has started.
- C.** Give four-factor prothrombin complex concentrate plus intravenous vitamin K.
- D.** Use idarucizumab because it rapidly reverses vitamin K antagonism.
- E.** Use andexanet alfa because warfarin reduces factor Xa activity.

110. A 79-year-old woman has a spontaneous right parietal hemorrhage and a prior contralateral lobar hemorrhage. MRI shows cortical superficial siderosis and numerous strictly lobar microbleeds. What is the most likely cause?

- A.** Hypertensive arteriopathy because recurrent lobar hemorrhage and cortical siderosis are typical deep-perforator markers.
- B.** Cerebral amyloid angiopathy causing recurrent lobar hemorrhage.
- C.** A hemorrhagic cerebral metastasis because strictly lobar microbleeds are specific for neoplasm.
- D.** Primary CNS vasculitis producing recurrent lobar hemorrhage through medium-vessel inflammation.
- E.** Anticoagulant-associated hemorrhage as the sole explanation despite characteristic chronic imaging markers.

111. A child with moyamoya disease develops transient unilateral weakness while crying vigorously. What physiologic change most likely contributes to the event?

- A.** Crying increases systemic arterial pressure enough to cause transient embolization from moyamoya collaterals.
- B.** Valsalva physiology raises intracranial pressure and mechanically occludes terminal carotid arteries.
- C.** Hypercapnia from breath holding causes vasoconstriction and lowers flow in compromised territories.
- D.** Crying produces platelet activation that acutely thromboses the basal collateral network.
- E.** Hyperventilation lowers carbon dioxide and can reduce cerebral blood flow in compromised territories.

112. Seven days after aneurysmal SAH, a patient develops new aphasia and right arm weakness. CT shows no rebleeding or hydrocephalus. Which management approach is appropriate for suspected symptomatic delayed cerebral ischemia?

- A.** Stop nimodipine because development of delayed cerebral ischemia indicates that the drug has failed.
- B.** Maintain euvolemia and consider induced blood-pressure elevation when clinically appropriate.
- C.** Lower systemic blood pressure to reduce metabolic demand despite a secured aneurysm and new focal deficits.
- D.** Use prophylactic hypervolemia as the primary treatment even if pulmonary edema develops.
- E.** Treat only angiographic vasospasm and ignore a clinical deficit if large-vessel narrowing is absent.

113. A patient with nonvalvular atrial fibrillation and prior ischemic stroke has no mechanical valve and no moderate-to-severe rheumatic mitral stenosis. Which class is generally preferred for chronic anticoagulation?

- A.** Warfarin because prior stroke makes vitamin K antagonism preferable to direct oral anticoagulation in nonvalvular AF.

- B.** Long-term low-molecular-weight heparin because oral agents are less effective after a prior embolic stroke.
- C.** A direct oral anticoagulant when no specific contraindication exists.
- D.** Dual antiplatelet therapy because prior stroke increases bleeding risk enough to avoid anticoagulation.
- E.** Left atrial appendage closure as routine first-line therapy before any trial of oral anticoagulation.

114. A 38-year-old man develops unilateral neck pain followed by partial Horner syndrome and transient contralateral weakness after minor neck trauma. Which imaging finding would most strongly support cervical internal carotid dissection?

- A.** A short smooth stenosis at the carotid bulb with calcified plaque and no wall hematoma.
- B.** A tapered luminal stenosis with mural hematoma in the cervical internal carotid artery.
- C.** A web-like shelf at the posterior carotid bulb without mural hematoma or a dissection flap.
- D.** Multifocal alternating stenosis and dilation bilaterally without a focal mural hematoma.
- E.** A focal intracranial saccular aneurysm arising from the posterior communicating artery origin.

115. A stroke survivor with mild residual weakness is medically stable but sedentary. Which lifestyle recommendation best supports secondary prevention?

- A.** Limit activity to unsupervised stretching because aerobic conditioning has little secondary-prevention value.
- B.** Avoid structured exercise when residual weakness is present because exertion raises recurrent-stroke risk.
- C.** Recommend only vigorous high-intensity exercise because moderate activity does not improve vascular risk.
- D.** Delay physical activity until all neurologic deficits have resolved completely.
- E.** Encourage regular safe physical activity, with supervised exercise when needed.

116. A 56-year-old woman with a mechanical mitral valve has an ischemic stroke after a period of subtherapeutic anticoagulation. Which long-term antithrombotic agent is required for the valve?

- A.** Apixaban at standard atrial-fibrillation dosing because DOACs are preferred for all prosthetic valves.
- B.** Dabigatran because direct thrombin inhibition provides more stable anticoagulation than warfarin for mechanical valves.
- C.** Warfarin with an appropriate valve-specific INR target for long-term mechanical mitral-valve anticoagulation.
- D.** Dual antiplatelet therapy because platelet inhibition is sufficient once the acute infarct is stable.
- E.** Low-dose aspirin alone if the valve is functioning normally on echocardiography.

117. A dural arteriovenous fistula is discovered in a patient with pulsatile tinnitus. Which angiographic feature most strongly predicts aggressive neurologic behavior?

- A.** Drainage into a dural sinus with antegrade venous flow and no cortical venous reflux.
- B.** Cortical venous reflux from the fistulous shunt, indicating retrograde drainage into cortical veins.
- C.** Multiple small meningeal arterial feeders without evidence of venous hypertension.
- D.** A fistula located near the transverse-sigmoid junction but draining normally into the sinus.
- E.** A small shunt volume with no venous ectasia and no retrograde cortical drainage.

118. A 61-year-old man has a witnessed focal motor seizure affecting the right arm, followed by right arm weakness that gradually resolves over two hours. CT shows no hemorrhage. What is the most likely explanation?

- A.** A small acute ischemic stroke causing persistent weakness that only appears to improve after the seizure.
- B.** Hemiplegic migraine triggered by the seizure and producing a two-hour negative motor aura.
- C.** Functional neurologic weakness because rapid improvement after an event excludes an organic postictal deficit.
- D.** Todd paralysis causing transient postictal focal weakness that gradually resolves after the seizure.
- E.** Peripheral nerve compression during the convulsion, which would usually produce a nerve-specific rather than hemispheric pattern.

119. A patient eligible for thrombectomy arrives at the comprehensive center three hours late because the transfer request was lost between institutions. What is the best system-level response?

- A.** Review only the receiving hospital because transfer delays originate after acceptance of the patient.
- B.** Focus on the individual who lost the request and leave the transfer workflow unchanged.
- C.** Add another approval step before transfers to create redundancy despite the existing delay.
- D.** Track the delay as a performance metric without examining how the communication failure occurred.
- E.** Perform a multidisciplinary root-cause analysis and redesign the transfer handoff process.

120. A 42-year-old patient with a prior cryptogenic nonlacunar ischemic stroke has a high-risk PFO and no competing cause despite thorough evaluation. Which prevention strategy is reasonable?

- A.** Antiplatelet therapy alone because closure has no role once a complete cryptogenic-stroke evaluation is negative.
- B.** Percutaneous PFO closure plus appropriate antithrombotic therapy in a selected patient.
- C.** Empiric oral anticoagulation as the preferred strategy for patients with a high-risk PFO despite no other indication.
- D.** PFO closure without any antithrombotic therapy after the procedure.
- E.** Close incidental PFOs without considering age, infarct pattern, or stronger alternative stroke mechanisms.

121. Which limitation of the NIH Stroke Scale is important when interpreting a low score?

- A.** A low score reliably excludes large-vessel occlusion when language and motor items are normal.
- B.** The scale weights posterior-circulation signs heavily, so posterior strokes often score disproportionately high.
- C.** The scale measures tissue volume directly and therefore substitutes for infarct-core imaging.
- D.** A low score establishes that any remaining deficit is non-disabling for that individual patient.
- E.** A low score can still accompany a disabling posterior-circulation or focal cortical deficit.

122. A 44-year-old woman has migraine with aura, recurrent subcortical ischemic events, mood symptoms, and a family history of early strokes. MRI shows extensive white-matter disease involving the anterior temporal poles and external capsules. Which diagnosis is most likely?

- A.** MELAS with maternal inheritance, hearing loss, diabetes, and nonterritorial stroke-like lesions.
- B.** NOTCH3-related CADASIL, a hereditary small-vessel arteriopathy with characteristic anterior temporal and external-capsule disease.
- C.** CARASIL, usually with recessive inheritance, alopecia, and early spondylosis.
- D.** Primary CNS vasculitis causing inflammatory CSF and multifocal vascular lesions.
- E.** Multiple sclerosis causing inflammatory demyelinating lesions rather than a hereditary small-vessel pattern.

123. CTA suggests a small posterior communicating artery aneurysm in a patient with aneurysmal subarachnoid hemorrhage, but precise morphology is needed for treatment planning. Which test provides the highest-resolution dynamic vascular anatomy?

- A.** High-resolution CTA, which may define the aneurysm but provides less dynamic spatial detail than catheter angiography.
- B.** Time-of-flight MRA, which avoids arterial catheterization but may be limited for treatment-level morphology.
- C.** Contrast-enhanced MRA, which can show aneurysm anatomy but is not the highest-resolution dynamic technique.
- D.** Three-dimensional reconstruction from noncontrast CT, which cannot define the aneurysm lumen precisely.
- E.** Digital subtraction catheter angiography for high-resolution dynamic delineation of aneurysm morphology and branch anatomy.

124. A patient has undergone successful endovascular treatment of a ruptured intracranial aneurysm. Why is follow-up cerebrovascular imaging important?

- A.** It is needed only after surgically clipped aneurysms because coiled aneurysms do not recur.
- B.** It can detect residual filling, recurrence, regrowth, or development of additional aneurysms.
- C.** It replaces clinical follow-up because imaging alone determines long-term neurologic outcome.

- D.** It is unnecessary when immediate post-treatment angiography shows complete occlusion.
- E.** It is performed mainly to screen for delayed cerebral ischemia years after the hemorrhage.

125. A 27-year-old woman taking estrogen-containing contraception develops progressive headache over five days followed by a focal seizure. Examination shows papilledema and mild right arm weakness. Which diagnosis is most likely?

- A.** Idiopathic intracranial hypertension causing papilledema and headache but not a focal hemorrhagic venous infarct.
- B.** Aneurysmal subarachnoid hemorrhage causing sudden maximal-at-onset headache rather than progressive symptoms.
- C.** Posterior reversible encephalopathy syndrome causing vasogenic edema in severe hypertension or eclampsia.
- D.** Migraine with aura causing recurrent spreading symptoms without papilledema or a hemorrhagic lesion.
- E.** Cerebral venous thrombosis with hemorrhagic venous infarction in a young patient with estrogen exposure and intracranial hypertension.

126. A hospitalized patient refuses a recommended procedure. Which element is required to establish decision-making capacity for that choice?

- A.** The ability to repeat the physician's recommendation without explaining personal consequences or alternatives.
- B.** Agreement with the medically recommended option after the risks and benefits are explained.
- C.** Understand, appreciate, reason, and communicate a stable treatment choice.
- D.** Absence of any psychiatric or neurologic diagnosis that could potentially affect cognition.
- E.** Family agreement with the decision even when the patient cannot demonstrate understanding or reasoning.

127. A 62-year-old woman with a large cerebellar infarction develops declining consciousness, brainstem compression, and obstructive hydrocephalus. What is the best next step?

- A.** Urgent neurosurgical decompression with management of hydrocephalus.

- B.** External ventricular drainage alone despite continued posterior-fossa mass effect and brainstem compression.
- C.** Hyperosmolar therapy as definitive management while waiting for the edema peak to pass.
- D.** Therapeutic anticoagulation to prevent propagation of the cerebellar arterial occlusion during swelling.
- E.** High-dose corticosteroids to reduce cytotoxic edema and avoid decompression.

128. A 58-year-old man with hypertension has loud snoring, witnessed apneas, morning headaches, and excessive daytime sleepiness. Which sleep disorder is most likely?

- A.** Central sleep apnea characterized by absent respiratory effort during apneic events.
- B.** REM sleep behavior disorder causing dream enactment rather than recurrent upper-airway obstruction.
- C.** Narcolepsy causing irresistible sleep attacks, cataplexy, and REM-related phenomena.
- D.** Obstructive sleep apnea caused by recurrent upper-airway collapse during sleep with snoring and witnessed apneas.
- E.** Obesity hypoventilation syndrome causing sustained awake hypercapnia in addition to sleep-disordered breathing.

129. A 57-year-old woman with acute ischemic stroke has serum glucose values fluctuating between 170 and 220 mg/dL. Which glucose strategy best reflects current guidance?

- A.** Use continuous insulin to maintain serum glucose between 80 and 100 mg/dL throughout the acute stroke period.
- B.** Allow values above 200 mg/dL unless the patient develops ketoacidosis or hyperosmolar syndrome.
- C.** Use dextrose-containing fluids routinely to prevent hypoglycemia even when glucose is persistently elevated.
- D.** Treat significant hyperglycemia while avoiding intensive normalization to 80–130 mg/dL.
- E.** Target mild hypoglycemia because lower glucose reduces ischemic metabolic demand.

130. A diabetic patient suddenly becomes aphasic and hemiparetic. Point-of-care glucose is 34 mg/dL. What is the most important immediate step?

- A.** Proceed directly to thrombolysis because severe hypoglycemia does not produce focal neurologic deficits.
- B.** Correct the severe hypoglycemia and reassess the neurologic deficit promptly.
- C.** Obtain perfusion imaging before giving glucose so a concurrent stroke is not masked by treatment.
- D.** Give insulin to reduce glucose variability before reassessing the focal deficit.
- E.** Wait for laboratory serum glucose confirmation before treating the point-of-care value of 34 mg/dL.

131. An asymptomatic child with sickle cell anemia undergoes transcranial Doppler screening. Why is this test used?

- A.** It identifies silent cerebral infarcts directly, eliminating the need for MRI when screening is abnormal.
- B.** It detects intracardiac right-to-left shunts that predict paradoxical embolic stroke in sickle cell disease.
- C.** It measures cerebral oxygen extraction fraction as a direct marker of impending infarction.
- D.** High intracranial arterial velocities identify children at increased stroke risk.
- E.** It quantifies extracranial carotid plaque burden, the main arterial mechanism of childhood sickle-cell stroke.

132. A 66-year-old man presents 7 hours after witnessed onset of a disabling hemispheric stroke. CTA shows no proximal occlusion amenable to thrombectomy. Perfusion imaging demonstrates a small ischemic core with a substantially larger region of delayed perfusion. What does this pattern indicate?

- A.** A matched perfusion deficit indicating completed infarction without substantial salvageable tissue.
- B.** A favorable perfusion mismatch with potentially salvageable penumbra.
- C.** Global low-flow physiology from systemic hypotension rather than a focal ischemic perfusion abnormality.

- D.** Chronic oligemia around an old infarct without evidence of acutely threatened tissue.
- E.** Postictal hyperperfusion in cortex that mimics an ischemic penumbra.

133. A stroke program wants to know whether a new protocol actually shortened treatment time. Which measurement best evaluates the intended change?

- A.** Compare door-to-needle time distributions before and after protocol implementation.
- B.** Compare total annual stroke admissions before and after the protocol without measuring treatment intervals.
- C.** Measure the proportion of patients receiving thrombolysis without recording time from arrival to treatment.
- D.** Use a single sentinel case with an excellent treatment time as evidence of sustained process improvement.
- E.** Measure clinician satisfaction with the protocol without recording the target process metric.

134. A previously healthy 9-year-old develops abrupt hemiparesis and aphasia. Which statement is most important for the emergency evaluation?

- A.** Treat focal deficits as seizure or migraine first because arterial ischemic stroke is too uncommon to justify emergent vascular imaging.
- B.** Children can have acute arterial ischemic stroke and require rapid stroke-focused imaging.
- C.** Delay stroke evaluation until symptoms persist for 24 hours because transient pediatric deficits rarely represent ischemia.
- D.** Use noncontrast CT alone and avoid vascular imaging because pediatric arterial occlusion does not change management.
- E.** Reserve acute stroke pathways for children with known cardiac disease or sickle cell disease.

135. A 46-year-old woman develops an instantaneous 'worst headache of my life' while exercising, followed by vomiting and neck stiffness. Which diagnosis must be urgently excluded?

- A.** Reversible cerebral vasoconstriction syndrome, which can cause thunderclap headache but does not explain neck stiffness as specifically as SAH.

- B.** Aneurysmal subarachnoid hemorrhage causing sudden maximal-at-onset headache, vomiting, and meningeal irritation.
- C.** Cervical artery dissection causing sudden neck or head pain with focal neurologic deficits.
- D.** Cerebral venous thrombosis, which more often produces progressive headache, papilledema, or seizures.
- E.** Pituitary apoplexy causing sudden headache with visual loss and ophthalmoplegia.

136. A patient with CVT and a hemorrhagic cortical venous infarct has a focal-to-bilateral tonic-clonic seizure. Which management principle is most appropriate?

- A.** Hold anticoagulation until the hemorrhagic venous infarct has completely resolved on imaging.
- B.** Use antiplatelet therapy instead of anticoagulation because a seizure indicates cortical hemorrhage.
- C.** Treat the seizure while continuing indicated anticoagulation for the CVT.
- D.** Escalate immediately to endovascular thrombectomy solely because a seizure occurred despite clinical stability.
- E.** Treat the seizure but reduce anticoagulation to prophylactic dosing to prevent further hemorrhage.

137. A previously independent 48-year-old man develops a complete left MCA territory infarction. Over 36 hours he becomes progressively somnolent with worsening midline shift despite medical measures. What intervention most improves survival?

- A.** Continue medical management alone because decompressive surgery improves radiographic swelling but not survival.
- B.** Use prolonged hyperventilation as definitive treatment through the peak edema period.
- C.** Begin therapeutic anticoagulation to limit secondary microvascular thrombosis within the infarct.
- D.** Perform ventricular drainage alone even though the major problem is hemispheric mass effect.
- E.** Early decompressive hemicraniectomy for malignant hemispheric edema.

138. A patient presents with acute ischemic stroke and active infective endocarditis with a mobile mitral vegetation. Which reperfusion issue is especially important?

- A.** Give IV thrombolysis because septic emboli are especially responsive to fibrinolysis despite mycotic-vessel bleeding risk.
- B.** Use IV thrombolysis if blood cultures have not yet turned positive, even when endocarditis is clinically established.
- C.** Avoid all reperfusion treatment, including thrombectomy, because infective emboli cannot be treated endovascularly.
- D.** Intravenous thrombolysis carries a high intracranial bleeding risk and is generally avoided.
- E.** Use anticoagulation as the preferred emergency reperfusion strategy for a septic cerebral embolus.

139. A family asks why the patient with a severe stroke is not improving immediately after successful thrombectomy. Which response best communicates prognosis?

- A.** Explain that complete angiographic reperfusion means substantial neurologic recovery should occur within the next hour.
- B.** Use the admission NIHSS alone to provide a precise long-term functional prognosis after thrombectomy.
- C.** Explain that reperfusion improves the chance of recovery but does not guarantee reversal of established injury.
- D.** Avoid discussing prognosis until the final infarct volume is known because uncertainty cannot be communicated meaningfully.
- E.** Explain that lack of immediate improvement indicates futile reperfusion and little possibility of later recovery.

140. MRI shows multiple chronic microbleeds in the basal ganglia, thalami, pons, and cerebellum in a patient with long-standing hypertension. Which small-vessel process is most likely?

- A.** Cerebral amyloid angiopathy, which typically produces strictly lobar rather than deep microbleeds.
- B.** Diffuse axonal injury producing traumatic microhemorrhages at gray-white junctions and the corpus callosum.

- C. Cerebral cavernous malformations causing discrete hemosiderin-lined lesions rather than a diffuse deep pattern.
- D. Hypertensive arteriolosclerosis affecting deep perforating vessels.
- E. Hemorrhagic metastases producing enhancing masses rather than numerous chronic deep microbleeds.

141. A patient with spontaneous intracerebral hemorrhage has no clinical or electrographic seizures. What is the best antiseizure strategy?

- A. Give levetiracetam prophylactically for a short course because cortical blood alone predicts enough seizure risk to justify treatment.
- B. Do not use routine prophylactic antiseizure medication solely because ICH is present.
- C. Use continuous EEG monitoring in every ICH patient and treat any periodic pattern as a clinical seizure.
- D. Start long-term antiseizure therapy if the hematoma is lobar even without clinical or electrographic seizures.
- E. Use phenytoin routinely during hospitalization because prophylaxis improves functional neurologic outcome.

142. A diagnostic test's sensitivity and specificity remain unchanged, but it is applied in a population with much lower disease prevalence. What happens to the positive predictive value?

- A. Positive predictive value generally decreases as disease prevalence falls.
- B. Positive predictive value increases because false-positive results become less common in low-prevalence populations.
- C. Positive predictive value remains unchanged because sensitivity and specificity have not changed.
- D. Positive predictive value becomes equal to test specificity when disease prevalence is low.
- E. Positive predictive value falls only if test sensitivity also decreases in the new population.

143. A concert pianist develops abrupt isolated right-hand weakness 2 hours ago. NIHSS is 1, CT shows no hemorrhage, and there is no contraindication to thrombolysis. The weakness prevents finger extension and makes performance impossible. What is the best treatment principle?

- A.** Treat as non-disabling because the numeric NIHSS score is below a fixed thrombolysis threshold.
- B.** Treat the deficit as disabling despite the low NIHSS score and consider otherwise indicated thrombolysis.
- C.** Use dual antiplatelet therapy instead of thrombolysis because isolated motor hand deficits are defined as non-disabling.
- D.** Delay reperfusion until MRI confirms cortical motor-area infarction despite presentation within the treatment window.
- E.** Base the decision only on whether a proximal large-vessel occlusion is present on vascular imaging.

144. A 41-year-old man has a small ischemic stroke from extracranial internal carotid artery dissection. There is no major contraindication to antithrombotic therapy. Which secondary-prevention approach is reasonable?

- A.** Use an antithrombotic strategy, with antiplatelet or anticoagulation selected individually.
- B.** Prefer anticoagulation for every cervical dissection because antiplatelet therapy is demonstrably inferior.
- C.** Prefer dual antiplatelet therapy indefinitely because vessel-wall healing commonly takes years.
- D.** Perform carotid stenting routinely during the acute hospitalization even without recurrent ischemia or hemodynamic compromise.
- E.** Withhold antithrombotic therapy until follow-up imaging confirms that the dissected artery has healed.

145. A 76-year-old woman with an acute hemispheric stroke is alert but has facial weakness and wet vocal quality. She asks for water. What is the best next step?

- A.** Allow small supervised sips because intact alertness is sufficient to establish safe swallowing.
- B.** Use thickened liquids empirically and perform a formal swallowing assessment only if aspiration occurs.

- C. Keep the patient NPO until a formal videofluoroscopic study can be obtained, without an initial bedside screen.
- D. Perform a validated swallowing screen before any oral intake, including water, food, or medication.
- E. Insert a feeding tube immediately because facial weakness and wet voice establish severe dysphagia.

146. A 33-year-old woman five days postpartum develops recurrent thunderclap headaches and one small convexity subarachnoid hemorrhage. Angiography shows multifocal arterial narrowing. Which diagnosis is most likely?

- A. Primary angiitis of the CNS, which usually has a progressive inflammatory course rather than postpartum recurrent thunderclap headache.
- B. Cerebral venous thrombosis, which may occur postpartum but would be evaluated by venous rather than arterial imaging.
- C. Posterior reversible encephalopathy syndrome, especially if severe hypertension and vasogenic edema were present.
- D. Aneurysmal subarachnoid hemorrhage causing diffuse basal cisternal blood rather than small convexity SAH with multifocal narrowing.
- E. Postpartum reversible cerebral vasoconstriction syndrome causing recurrent thunderclap headache and multifocal arterial narrowing.

147. A patient with thalamic ICH develops acute obstructive hydrocephalus from intraventricular hemorrhage and declining consciousness. Which intervention is most appropriate?

- A. Use hyperosmolar therapy alone as definitive treatment despite obstructive ventricular enlargement and declining consciousness.
- B. Perform serial lumbar punctures to drain CSF while avoiding an external ventricular catheter.
- C. Observe with repeat CT because intraventricular blood-related hydrocephalus is usually transient and asymptomatic.
- D. Place a permanent ventriculoperitoneal shunt immediately before a trial of temporary CSF diversion.

E. Place an external ventricular drain for urgent CSF diversion in symptomatic obstructive hydrocephalus.

148. A patient has acute painful ptosis and miosis on one side with preserved extraocular movements. Which vascular diagnosis should be considered urgently?

- A. Posterior communicating artery aneurysm causing a compressive third-nerve palsy with ptosis and pupillary dilation.
- B. Cavernous sinus syndrome causing painful ophthalmoplegia with multiple ocular motor nerve deficits.
- C. Cluster headache producing autonomic symptoms but no structural sympathetic pathway lesion.
- D. Internal carotid artery dissection causing a partial Horner syndrome.
- E. Myasthenia gravis causing fluctuating ptosis but sparing pupillary sympathetic function.

149. A young adult has recurrent stroke-like episodes that do not respect arterial territories, sensorineural hearing loss, diabetes, short stature, and maternal inheritance. Which disorder is most likely?

- A. CADASIL, which causes hereditary small-vessel infarcts in arterial territories with characteristic white-matter disease.
- B. Fabry disease, which may cause young stroke with renal, cardiac, skin, and neuropathic manifestations.
- C. POLG-related mitochondrial disease without the classic MELAS phenotype described.
- D. Cerebral autosomal-recessive arteriopathy with subcortical infarcts and leukoencephalopathy.
- E. MELAS with mitochondrial stroke-like episodes, maternal inheritance, hearing loss, diabetes, and short stature.

150. A 34-year-old man without hypertension develops a spontaneous lobar intracerebral hemorrhage. Which diagnostic principle is most appropriate?

- A. Attribute the hemorrhage to occult hypertension and defer etiologic imaging unless another hemorrhage occurs.

- B.** Use MRI alone without vascular imaging because macrovascular lesions are uncommon in young adults.
- C.** Diagnose cerebral amyloid angiopathy despite the young age if the hemorrhage is lobar.
- D.** Evaluate for an underlying macrovascular or structural lesion with vascular imaging.
- E.** Restrict evaluation to coagulation studies because a normal blood pressure excludes vascular malformations.

151. A 35-year-old woman develops unilateral neck pain, ptosis, and miosis without anhidrosis, followed several hours later by transient contralateral weakness. Which lesion best explains this sequence?

- A.** Cavernous sinus thrombosis causing painful ophthalmoplegia, proptosis, and multiple cranial neuropathies.
- B.** Posterior communicating artery aneurysm causing a pupil-involving third-nerve palsy rather than miosis.
- C.** Lateral medullary infarction causing Horner syndrome together with crossed sensory and bulbar findings.
- D.** Cluster headache causing transient ptosis and miosis but not subsequent contralateral cerebral ischemia.
- E.** Internal carotid artery dissection affecting periarterial sympathetic fibers.

152. A 63-year-old woman with prior ischemic stroke has persistent outpatient blood pressures around 158/92 mm Hg. Which intervention has the greatest importance for reducing recurrent stroke risk?

- A.** Allow chronic systolic pressures in the 150s to preserve cerebral perfusion after the acute stroke period.
- B.** Use short-acting antihypertensive medication only when symptoms such as headache accompany elevated pressure.
- C.** Sustained treatment of hypertension to an individualized evidence-based target.
- D.** Delay blood-pressure treatment until recurrent TIA or stroke demonstrates inadequate spontaneous control.

E. Target higher chronic pressure in all stroke survivors because autoregulation remains permanently pressure dependent.

153. A patient with fever, a new murmur, splinter hemorrhages, and multiple cerebral infarcts has blood cultures growing *Staphylococcus aureus*. Which stroke mechanism is most likely?

A. Nonbacterial thrombotic endocarditis causing sterile emboli in the setting of cancer or systemic inflammation.

B. Cardioembolism from atrial fibrillation without an infected valvular source.

C. Paradoxical embolism through a PFO from an unrecognized venous thrombus.

D. Septic embolization from infective endocarditis producing cerebral infarcts from an infected cardiac valvular source.

E. Artery-to-artery embolism from ulcerated carotid plaque causing a single vascular-territory pattern.

154. A patient with limited health literacy is starting a complicated medication regimen. Which communication technique best checks understanding?

A. Ask the patient to explain the plan back in their own words.

B. Ask whether the patient understands and proceed when the patient answers yes.

C. Have the patient repeat the medication names without explaining how and when they will be taken.

D. Provide written instructions first and assess comprehension only if the patient later misses doses.

E. Ask a family member to restate the plan even though the patient is capable of participating directly.

155. A patient with high-grade SAH develops transient ST-segment changes, modest troponin elevation, and apical ventricular dysfunction without obstructive coronary disease. What is the most likely explanation?

A. Neurogenic stunned myocardium from catecholamine-mediated cardiac injury.

B. Acute plaque-rupture myocardial infarction despite the absence of obstructive coronary disease.

- C. Coronary embolism from the ruptured intracranial aneurysm causing a fixed territorial wall-motion abnormality.
- D. Myocarditis triggered by subarachnoid blood with a delayed inflammatory cardiomyopathy.
- E. Chronic stress cardiomyopathy predating the hemorrhage rather than an acute neurocardiac complication.

156. A 32-year-old woman has an ischemic stroke with no vascular risk factors. Which situation most strongly justifies targeted testing for an acquired thrombophilia such as antiphospholipid syndrome?

- A. A single lacunar infarct in an older patient with longstanding hypertension, diabetes, and no systemic autoimmune features.
- B. A territorial infarct downstream from severe symptomatic ipsilateral carotid stenosis.
- C. Young age with recurrent arterial events, miscarriages, or other autoimmune features.
- D. A postoperative watershed infarct after prolonged documented hypotension and severe anemia.
- E. A cardioembolic infarct with persistent atrial fibrillation and documented left atrial appendage thrombus.

157. An older hospitalized patient becomes acutely inattentive with fluctuating alertness and disorganized thinking over several hours. Which syndrome is most likely?

- A. Delirium with acute fluctuating inattention and altered awareness.
- B. Major neurocognitive disorder due to Alzheimer disease with insidious progressive memory impairment.
- C. Subcortical vascular cognitive impairment with chronic executive slowing and gait dysfunction.
- D. Dementia with Lewy bodies causing months to years of fluctuation, parkinsonism, and visual hallucinations.
- E. Medication-induced sedation without the characteristic fluctuating inattention and disorganized thinking.

158. A 14-year-old with sickle cell disease develops acute right hemiparesis and aphasia. Which underlying process makes ischemic stroke particularly important in this disorder?

- A.** Cardioembolism from chronic left ventricular systolic dysfunction caused by sickle-cell cardiomyopathy.
- B.** Atherosclerotic plaque rupture from premature hyperlipidemia as the dominant pediatric stroke mechanism.
- C.** Cerebral venous thrombosis as the principal mechanism of arterial ischemic stroke in sickle cell disease.
- D.** Progressive large-artery vasculopathy with severe anemia-related cerebral hemodynamic stress.
- E.** Isolated small-vessel lipohyalinosis without involvement of large intracranial arteries.

159. A right-handed patient has fluent speech with preserved comprehension but cannot repeat phrases and makes phonemic paraphasic errors. Which network lesion best explains the syndrome?

- A.** Dominant posterior temporal cortex injury causing impaired comprehension in addition to fluent speech.
- B.** Dominant inferior frontal cortex injury causing nonfluent output with relatively preserved comprehension.
- C.** Nondominant parietal association cortex injury producing neglect rather than a repetition deficit.
- D.** Supplementary motor area injury producing reduced spontaneous speech rather than fluent phonemic paraphasias.
- E.** Dominant arcuate fasciculus disconnection causing conduction aphasia with disproportionately impaired repetition.

160. A 73-year-old woman presents with an ICA terminus occlusion and a large established ischemic core on imaging. She was previously independent and is within an endovascular treatment window. Which statement is most accurate?

- A.** Use medical therapy alone because any large ischemic core predicts harm from endovascular reperfusion.
- B.** Consider thrombectomy only when noncontrast CT shows no visible established infarction.
- C.** A large core no longer automatically excludes selected patients from thrombectomy.
- D.** Restrict thrombectomy in large-core stroke to patients younger than 60 without considering functional status or imaging.

E. Use IV thrombolysis instead of thrombectomy because large-core occlusions are not amenable to mechanical reperfusion.

161. A 75-year-old right-handed woman suddenly develops fluent but nonsensical speech, impaired comprehension, and a right superior quadrantanopia without major weakness. Which lesion is most likely?

A. Left MCA superior-division infarction affecting inferior frontal motor-language regions.

B. Left posterior cerebral artery infarction affecting occipital cortex and splenium.

C. Right MCA inferior-division infarction affecting nondominant temporoparietal association cortex.

D. Left anterior cerebral artery infarction affecting medial frontal supplementary motor regions.

E. Left MCA inferior-division infarction involving posterior temporal cortex.

162. A 72-year-old man with an acute MCA stroke has oxygen saturation of 96% on room air and no respiratory distress. What is the best oxygen strategy?

A. Give low-flow supplemental oxygen routinely because even normal saturation may conceal ischemic tissue hypoxia.

B. Do not give routine supplemental oxygen when oxygen saturation is normal.

C. Target oxygen saturation at 100% with high-flow therapy throughout the first 24 hours.

D. Use hyperbaric oxygen routinely to improve penumbral oxygen delivery after arterial occlusion.

E. Intubate electively despite normal oxygenation because hemispheric strokes predict delayed respiratory failure.

163. A 47-year-old woman with carotid fibromuscular dysplasia is found to have renal artery involvement. Which additional clinical problem is especially associated with this systemic arteriopathy?

A. Arterial dissection or aneurysm in another vascular bed.

B. Chronic inflammatory aortitis with ostial stenosis of multiple great vessels.

C. Cerebral amyloid angiopathy producing strictly lobar hemorrhagic markers.

D. Primary cerebral venous thrombophilia without arterial abnormalities elsewhere.

E. Infective endocarditis causing mycotic aneurysms as the typical systemic association.

164. A patient with CVT provoked by a transient major risk factor improves on anticoagulation. How should the duration of anticoagulation be determined?

- A. Use a uniform three-month duration because recurrence risk does not vary by provoking factor or thrombophilia.
- B. Stop anticoagulation once venous recanalization is seen, even if the major provoking risk remains present.
- C. Individualize duration by provoking factor, recurrence risk, and persistent thrombophilia.
- D. Continue indefinite anticoagulation after a first transiently provoked CVT despite low recurrence risk and meaningful bleeding risk.
- E. Switch to antiplatelet therapy after the acute phase because long-term venous recurrence is platelet mediated.

165. A patient taking apixaban develops a life-threatening intracerebral hemorrhage shortly after the most recent dose. Which agent is designed to reverse factor Xa inhibitors?

- A. Four-factor prothrombin complex concentrate as the only agent specifically designed to bind and neutralize apixaban.
- B. Idarucizumab, a monoclonal antibody fragment that specifically binds factor Xa inhibitors.
- C. Vitamin K, which reverses direct factor Xa inhibition by restoring hepatic clotting-factor synthesis.
- D. Andexanet alfa, a specific reversal agent designed to neutralize the anticoagulant effect of factor Xa inhibitors.
- E. Protamine sulfate, which directly neutralizes apixaban to the same extent as unfractionated heparin.

166. A pregnant woman has a disabling acute ischemic stroke from a large-vessel occlusion. Which principle is most appropriate?

- A. Pregnancy alone should not automatically exclude otherwise indicated reperfusion therapy.

- B.** Use IV thrombolysis but exclude thrombectomy because radiation exposure makes endovascular therapy absolutely contraindicated.
- C.** Use thrombectomy but exclude IV thrombolysis solely because placental bleeding risk is present in every pregnancy.
- D.** Delay maternal reperfusion until fetal status and gestational age permit delivery if neurologic deficits remain stable.
- E.** Use antiplatelet therapy alone because pregnancy changes the benefit-risk balance enough to preclude acute reperfusion.

167. A 63-year-old man presents 75 minutes after sudden numbness of the left face and hand. Strength, language, vision, and gait are normal; NIHSS is 1 for sensory loss only. CT excludes hemorrhage. Which treatment is preferred?

- A.** Administer IV thrombolysis because any persistent NIHSS point represents a disabling deficit.
- B.** Use aspirin monotherapy because dual antiplatelet therapy provides no early benefit after minor noncardioembolic stroke.
- C.** Start therapeutic anticoagulation because early neurologic worsening is common after minor stroke.
- D.** Begin short-term dual antiplatelet therapy for a non-disabling minor stroke.
- E.** Delay antithrombotic therapy until repeat imaging at 24 hours despite no thrombolytic treatment.

168. A patient develops acute bilateral leg weakness, a sensory level, urinary retention, and preserved cranial nerve function. Which study is most important to evaluate a compressive spinal cord lesion?

- A.** Noncontrast head CT to exclude a supratentorial hemorrhage before evaluating the spinal symptoms.
- B.** CT myelography as the preferred first test even when MRI is immediately available and not contraindicated.
- C.** Electrodiagnostic testing to localize a peripheral neuropathy before imaging the spinal cord.
- D.** Urgent MRI of the appropriate spinal levels to identify or exclude compressive spinal cord pathology.

E. Lumbar puncture before imaging to distinguish inflammatory myelitis from mechanical compression.

169. A 61-year-old man has sudden ipsilateral limb ataxia with mild weakness but no cortical signs. MRI shows a small infarct in the basis pontis. Which lacunar syndrome best fits?

A. Pure motor hemiparesis from a posterior-limb capsular infarct without prominent limb dysmetria.

B. Ataxic hemiparesis from a small pontine or capsular infarct.

C. Dysarthria-clumsy hand syndrome characterized by hand incoordination and facial-bulbar weakness.

D. Pure sensory lacunar syndrome from a thalamic perforator infarct.

E. Sensorimotor lacunar syndrome involving adjacent thalamic and internal-capsule pathways.

170. A 74-year-old woman is otherwise eligible for IV thrombolysis 2 hours after onset, but her blood pressure is 202/112 mm Hg. What is the best next step?

A. Give thrombolysis immediately and lower blood pressure only if it rises further during the infusion.

B. Lower systolic pressure to below 140 mm Hg before treatment because intensive control improves thrombolysis safety.

C. Lower blood pressure below the thrombolysis treatment threshold, then treat promptly.

D. Withhold IV thrombolysis permanently because a presenting systolic pressure above 200 mm Hg is an absolute exclusion.

E. Use aspirin first and reconsider thrombolysis only if blood pressure normalizes spontaneously within the treatment window.

171. An incapacitated patient has no written advance directive, but a legally appropriate surrogate knows the patient's previously expressed wishes. Which decision standard should guide the surrogate?

A. Best-interest judgment based primarily on what the treating team believes would maximize survival.

B. Substituted judgment based on what the patient would have chosen.

- C. The surrogate's own preferences because the patient cannot participate directly.
- D. Automatic continuation of life-sustaining treatment until a court order is obtained.
- E. Use the preference of the majority of family members rather than the patient's prior expressed wishes.

172. A 62-year-old woman with a moderate acute ischemic stroke and newly detected atrial fibrillation asks why a therapeutic heparin infusion is not being started immediately. What is the best explanation?

- A. Urgent therapeutic heparin reliably prevents early recurrent AF embolism enough to outweigh hemorrhagic transformation risk.
- B. Heparin should be started immediately because oral anticoagulants cannot be initiated after ischemic stroke.
- C. Urgent full-dose anticoagulation does not improve acute stroke outcome and increases bleeding risk.
- D. Therapeutic anticoagulation is withheld only when infarct size exceeds one-third of the MCA territory.
- E. Atrial fibrillation should be treated with dual antiplatelet therapy during the first month rather than later anticoagulation.

173. A patient has cognitive slowing, executive dysfunction, gait impairment, and MRI showing extensive subcortical ischemic disease with multiple lacunes. Which cognitive syndrome is most likely?

- A. Alzheimer disease with predominant episodic-memory impairment and medial temporal atrophy.
- B. Dementia with Lewy bodies with prominent visual hallucinations, parkinsonism, and cognitive fluctuations.
- C. Behavioral-variant frontotemporal dementia with early disinhibition and personality change.
- D. Subcortical vascular cognitive impairment with executive slowing, gait dysfunction, and extensive small-vessel ischemic disease.
- E. Normal-pressure hydrocephalus, which may cause gait and executive dysfunction but would not explain multiple lacunes by itself.

174. MRI in a 78-year-old with recurrent lobar hemorrhages shows numerous strictly lobar microbleeds and cortical superficial siderosis, with relative sparing of the deep nuclei. Which arteriopathy is most likely?

- A.** Hypertensive arteriopathy, which more often produces deep basal-ganglia, thalamic, brainstem, and cerebellar microbleeds.
- B.** Diffuse axonal injury with traumatic microhemorrhages at gray-white junctions and callosal structures.
- C.** Multiple cavernous malformations causing discrete hemosiderin-lined lesions throughout the brain.
- D.** Hemorrhagic metastases causing enhancing mass lesions rather than a strictly lobar microbleed pattern.
- E.** Cerebral amyloid angiopathy causing a strictly lobar hemorrhagic pattern with cortical superficial siderosis.

175. A 49-year-old patient has recurrent premature atherosclerotic cerebrovascular disease despite a modest LDL cholesterol level. Which additional lipid marker may identify inherited residual atherothrombotic risk?

- A.** Apolipoprotein B as a marker of atherogenic particle number but not the specific inherited residual marker emphasized here.
- B.** High-sensitivity C-reactive protein as an inflammatory risk marker rather than an inherited lipoprotein trait.
- C.** Lipoprotein(a), a largely genetically determined atherogenic lipoprotein associated with residual atherosclerotic risk.
- D.** Triglycerides as a routine marker of remnant metabolism rather than the characteristic genetically determined particle.
- E.** Homocysteine as an amino-acid metabolite rather than an inherited LDL-like atherothrombotic particle.

176. A screening test has very high sensitivity but only moderate specificity. How should a negative result be interpreted when the test is applied appropriately?

- A.** A negative result provides little exclusion value because high sensitivity mainly affects positive rather than negative results.

- B.** A negative result increases the probability of disease when specificity is only moderate.
- C.** A negative result is useful for ruling out the target condition.
- D.** A negative result rules out disease absolutely even when pretest probability is extremely high.
- E.** A negative result is determined primarily by specificity, whereas sensitivity mainly interprets positive results.

177. An older patient with lobar intracerebral hemorrhage undergoes MRI. Which sequence is particularly sensitive for chronic cerebral microbleeds and cortical superficial siderosis?

- A.** FLAIR imaging, which is sensitive for edema and white-matter disease but not optimized for susceptibility effects.
- B.** Susceptibility-weighted or T2*-weighted gradient-echo imaging, which is highly sensitive to chronic blood products.
- C.** Diffusion-weighted imaging, which is optimized for acute cytotoxic edema rather than chronic hemosiderin.
- D.** T1-weighted imaging, which is useful for anatomy but relatively insensitive to small hemosiderin deposits.
- E.** Arterial spin labeling, which evaluates perfusion rather than chronic blood-product susceptibility.

178. A right-handed patient develops nonfluent aphasia with right face-arm weakness greater than leg weakness and relatively preserved comprehension. Which vascular lesion is most likely?

- A.** Left MCA inferior-division infarction producing fluent aphasia with relatively spared motor function.
- B.** Right MCA superior-division infarction producing left face-arm weakness without dominant-language aphasia.
- C.** Left anterior cerebral artery infarction producing leg-predominant weakness and abulia.
- D.** Left posterior cerebral artery infarction producing visual-field loss and possible alexia without agraphia.
- E.** Left MCA superior-division infarction affecting dominant frontal language cortex and face-arm motor regions.

179. Which property makes a positive likelihood ratio most useful for increasing diagnostic probability?

- A.** A positive likelihood ratio close to 1, indicating the finding occurs similarly with and without disease.
- B.** A large ratio indicating the finding is much more likely with disease than without it.
- C.** A very small positive likelihood ratio, indicating the finding is common in patients without disease.
- D.** A ratio that changes substantially with disease prevalence even when sensitivity and specificity are stable.
- E.** A ratio equal to the positive predictive value of the test in the population being examined.

180. Which serum test most directly supports a diagnosis of neuromyelitis optica spectrum disorder in a patient with typical clinical features?

- A.** MOG IgG antibody testing, which supports MOG-associated disease rather than classic AQP4-positive NMOSD.
- B.** Oligoclonal bands in CSF, which are more characteristic of multiple sclerosis and are not serum antibodies.
- C.** ANA testing, which may identify systemic autoimmunity but does not directly establish NMOSD.
- D.** Aquaporin-4 IgG antibody testing, the most specific serum biomarker for typical AQP4-positive NMOSD.
- E.** Paraneoplastic neural-antibody testing, which evaluates a different group of inflammatory neurologic syndromes.

181. A patient has a single generalized seizure immediately after a cortical ischemic stroke and returns to baseline afterward. Which principle is most appropriate?

- A.** Start long-term antiseizure medication after any acute symptomatic seizure because recurrence is inevitable after cortical infarction.
- B.** Use short-term prophylactic antiseizure medication in every cortical ischemic stroke even when no seizure occurs.
- C.** Treat recurrent or clinically significant seizures, but do not give universal prophylaxis.

D. Withhold antiseizure medication after a second seizure unless EEG captures ongoing epileptiform activity.

E. Treat only seizures occurring more than seven days after stroke because early seizures do not require acute management.

182. A 42-year-old woman develops sudden occipital headache, neck pain, vertigo, and ataxia after yoga-related neck rotation. Which vascular lesion is most important to exclude?

A. Vertebral artery dissection producing occipital-neck pain followed by posterior-circulation ischemic symptoms.

B. Posterior inferior cerebellar artery aneurysm causing subarachnoid hemorrhage without a dissected cervical vessel.

C. Reversible cerebral vasoconstriction syndrome causing recurrent thunderclap rather than neck-motion-associated occipital pain.

D. Cerebral venous thrombosis producing progressive headache, papilledema, or seizures rather than a posterior arterial syndrome.

E. Occipital neuralgia causing posterior head pain without focal posterior-circulation neurologic deficits.

183. A 64-year-old man undergoes successful thrombectomy with complete reperfusion of an M1 occlusion. His systolic blood pressure is 158 mm Hg afterward. Which strategy is most appropriate?

A. Intensively lower systolic pressure below 120 mm Hg immediately to reduce reperfusion injury after successful EVT.

B. Target systolic pressure below 140 mm Hg routinely because more intensive lowering improves outcome after reperfusion.

C. Avoid intensive lowering to a systolic target below 140 mm Hg solely for reperfusion.

D. Induce systolic hypertension above 200 mm Hg despite complete reperfusion to maintain collateral flow.

E. Stop antihypertensive treatment for 72 hours despite post-procedure pressure level or relevant comorbidity.

184. A 64-year-old woman has acute right hemiparesis, right loss of vibration and proprioception, and left tongue weakness. Which vascular territory is involved?

- A.** Left lateral medulla involving nucleus ambiguus and spinothalamic pathways.
- B.** Left medial medulla supplied by paramedian vertebral or anterior spinal branches.
- C.** Right medial medulla, which would produce left rather than right corticospinal and dorsal-column deficits.
- D.** Left basis pontis involving corticospinal fibers without hypoglossal fascicular weakness.
- E.** Right internal capsule causing contralateral weakness but not ipsilateral tongue weakness from a medullary lesion.

185. A patient remains confused and intermittently unresponsive after convulsive movements have stopped. No major metabolic abnormality is found. Which test is most useful to evaluate for nonconvulsive status epilepticus?

- A.** A routine EEG obtained after mental status has fully normalized, because prolonged recording is unnecessary.
- B.** Continuous EEG monitoring to detect ongoing electrographic seizure activity during persistent altered awareness.
- C.** Serum prolactin levels measured intermittently to detect ongoing subclinical seizures.
- D.** Repeat head CT alone because persistent confusion after convulsions is most often caused by structural progression.
- E.** Empiric long-term antiseizure treatment without electrographic evaluation of the ongoing altered state.

186. A 71-year-old man has a recent ipsilateral TIA and 55% carotid stenosis. Which factor most strongly determines whether carotid endarterectomy offers enough benefit to justify procedural risk?

- A.** Use plaque calcification as the primary determinant despite stenosis degree and perioperative risk.
- B.** Presence of any silent contralateral white-matter disease on MRI.
- C.** A short symptom duration, because TIAs lasting under one hour derive no benefit from surgery.

D. Presence of a PFO, which substantially changes the benefit of treating ipsilateral moderate carotid stenosis.

E. Individual surgical risk together with age, sex, comorbidity, and stenosis severity.

187. A young adult is briefly unconscious after head trauma, awakens and appears well, then rapidly deteriorates. CT shows a biconvex extra-axial hematoma. Which lesion is most likely?

A. Acute subdural hematoma from bridging-vein injury, which is usually crescentic rather than biconvex.

B. Cerebral contusion causing intraparenchymal hemorrhage at the site of impact or contrecoup injury.

C. Traumatic subarachnoid hemorrhage producing blood in sulci and cisterns rather than a lens-shaped extra-axial collection.

D. Epidural hematoma from middle meningeal arterial injury, classically producing a biconvex extra-axial collection.

E. Diffuse axonal injury producing coma with punctate shear hemorrhages rather than a focal biconvex hematoma.

188. A medically stable patient with moderate ICH is being evaluated for mobilization. Which rehabilitation principle is most appropriate?

A. Begin maximal-intensity out-of-bed mobilization during the first several hours after ICH once vital signs are stable.

B. Begin rehabilitation after stabilization, avoiding aggressive mobilization in the first 24 hours.

C. Maintain strict bed rest until repeat imaging shows complete resolution of the hematoma.

D. Delay rehabilitation until the neurologic deficit stops improving spontaneously over several weeks.

E. Use routine fluoxetine to accelerate motor recovery before starting task-specific rehabilitation.

189. A patient with delirium after hospitalization has no immediate danger to self or others. Which management strategy is preferred?

- A.** Start scheduled antipsychotic therapy for the duration of hospitalization even without dangerous agitation or psychosis.
- B.** Use physical restraints early to reduce falls and preserve sleep-wake cycling during periods of inattention.
- C.** Treat sleep disruption with routine benzodiazepines because they restore normal architecture in hospitalized older adults.
- D.** Treat precipitating causes and use nonpharmacologic orientation, sleep, mobility, and sensory support.
- E.** Minimize daytime mobility and stimulation because fluctuating attention improves with prolonged bed rest.

190. A 69-year-old patient with acute ischemic stroke did not receive thrombolysis and has no hemorrhage on CT. There is no indication for immediate anticoagulation. Which antithrombotic strategy is appropriate early in the hospitalization?

- A.** Begin therapeutic heparin to prevent early progression of the infarct before the stroke mechanism is established.
- B.** Start warfarin immediately because oral anticoagulation is preferred before etiologic classification is complete.
- C.** Delay antiplatelet therapy for several days because aspirin increases hemorrhagic transformation after uncomplicated ischemic stroke.
- D.** Start aspirin within the early post-stroke period once hemorrhage is excluded.
- E.** Use aspirin plus clopidogrel routinely across acute ischemic strokes without regard to severity or mechanism.

191. A 74-year-old woman has new temporal headache, scalp tenderness, jaw claudication, and brief monocular visual loss. ESR and CRP are elevated. Which diagnosis is most likely?

- A.** Giant cell arteritis causing new cranial symptoms, jaw claudication, retinal ischemia, and elevated inflammatory markers.
- B.** Migraine with aura causing gradually spreading neurologic symptoms and recurrent headache from a younger age.

C. Trigeminal neuralgia causing brief electric facial pain rather than temporal headache, jaw claudication, and inflammatory markers.

D. Cluster headache causing autonomic symptoms and orbital pain rather than ischemic monocular episodes and jaw claudication.

E. Cervical carotid dissection causing neck pain and retinal ischemia but not the classic inflammatory cranial syndrome.

192. A 70-year-old man presents 3 hours after onset of severe aphasia and right hemiplegia. CTA shows a left internal carotid terminus occlusion. He is functionally independent at baseline. What is the best reperfusion plan?

A. Pursue mechanical thrombectomy and give IV thrombolysis if otherwise eligible.

B. Use IV thrombolysis alone and defer thrombectomy unless there is no clinical improvement after the infusion.

C. Proceed directly to thrombectomy but withhold otherwise indicated IV thrombolysis because bridging therapy worsens outcome.

D. Use aggressive antiplatelet therapy first and reserve thrombectomy for deterioration despite medical treatment.

E. Wait for perfusion imaging despite early presentation and a clearly disabling proximal large-vessel occlusion.

193. A 67-year-old woman develops pure left face-arm-leg weakness without aphasia, neglect, sensory loss, or visual field deficit. MRI shows a small acute infarct in the right posterior limb of the internal capsule. Which stroke mechanism is most likely?

A. Cardioembolism causing a small deep infarct despite the absence of cortical or multiterritory lesions.

B. Branch atheromatous disease from plaque at the origin of a penetrating artery rather than intrinsic small-vessel pathology.

C. Artery-to-artery embolism from ipsilateral carotid stenosis producing a cortical or border-zone pattern.

D. Hemodynamic hypoperfusion causing watershed infarction at junctions between major arterial territories.

E. Occlusion of a small penetrating artery from intrinsic small-vessel disease.

194. A patient is being monitored after aneurysmal subarachnoid hemorrhage for evolving large-artery vasospasm. Which bedside test can serially measure intracranial flow velocities?

A. Transcranial Doppler ultrasonography for serial bedside measurement of flow velocity in major intracranial arteries.

B. CT angiography repeated several times daily as the preferred bedside serial velocity monitor.

C. Continuous EEG, which can suggest ischemic change but does not directly measure intracranial arterial flow velocity.

D. Optic-nerve sheath ultrasonography, which estimates intracranial pressure rather than arterial vasospasm.

E. Carotid duplex ultrasonography, which measures extracranial carotid flow rather than basal intracranial arteries.

195. A patient with facial infection develops fever, severe headache, proptosis, chemosis, ophthalmoplegia, and reduced facial sensation in the V1 distribution. Which venous disorder is most likely?

A. Superior sagittal sinus thrombosis causing papilledema and parasagittal deficits rather than orbital congestion.

B. Superior ophthalmic vein thrombosis without cavernous sinus involvement, producing more limited orbital venous findings.

C. Septic cavernous sinus thrombosis causing painful ophthalmoplegia and proptosis.

D. Carotid-cavernous fistula causing pulsatile proptosis and bruit but not the infectious febrile presentation described.

E. Orbital cellulitis without cavernous sinus extension, which would not as readily explain multiple ocular motor neuropathies and V1 loss.

196. A patient with confirmed aneurysmal subarachnoid hemorrhage is neurologically stable after initial resuscitation. What is the definitive priority?

A. Delay definitive aneurysm treatment until the vasospasm-risk period has passed to reduce procedural ischemia.

- B.** Use antifibrinolytic therapy as a long-term substitute for aneurysm occlusion when the patient is neurologically stable.
- C.** Secure the ruptured aneurysm as early as feasible, preferably within 24 hours.
- D.** Treat delayed cerebral ischemia prophylactically before securing the aneurysm because vasospasm is the immediate priority.
- E.** Observe after initial stabilization if repeat CT shows no increase in subarachnoid blood.

197. A 31-year-old postpartum woman has superior sagittal sinus thrombosis with a small hemorrhagic venous infarct. Which treatment is generally indicated?

- A.** Use aspirin because hemorrhagic venous infarction makes therapeutic anticoagulation excessively risky.
- B.** Delay anticoagulation until the hemorrhagic component has fully resolved on serial imaging.
- C.** Use prophylactic-dose heparin rather than therapeutic anticoagulation because intracranial blood is present.
- D.** Therapeutic anticoagulation despite the hemorrhagic venous infarct.
- E.** Proceed directly to endovascular thrombectomy before giving anticoagulation in a clinically stable patient.

198. A patient with ischemic stroke caused by atherosclerotic disease has an LDL cholesterol of 148 mg/dL and no contraindication to statin therapy. What is the best lipid strategy?

- A.** Use moderate-intensity statin therapy only because high-intensity treatment increases recurrent ischemic risk after stroke.
- B.** Use ezetimibe monotherapy before a statin because prior stroke changes the usual lipid-treatment sequence.
- C.** Use high-intensity statin therapy with substantial LDL reduction for secondary prevention after atherosclerotic stroke.
- D.** Use fibrate monotherapy unless the LDL exceeds 190 mg/dL, even when triglycerides are not elevated.
- E.** Use diet alone initially because a cerebrovascular atherosclerotic event does not qualify as clinical ASCVD.

199. A patient has a disabling left hemispheric syndrome and CTA demonstrates an M2 branch occlusion. Which principle best guides thrombectomy consideration?

- A.** Withhold IV thrombolysis and favor thrombectomy because an isolated M2 occlusion should be treated like a proximal large-vessel occlusion.
- B.** Provide guideline-directed medical reperfusion, including IV thrombolysis when eligible; routine thrombectomy for isolated DMVO is not established standard care.
- C.** Use antiplatelet therapy instead of IV thrombolysis because medium-vessel occlusion is considered a nonreperfusion syndrome.
- D.** Proceed routinely to thrombectomy based on vessel visibility without considering recent randomized DMVO evidence or individual anatomy.
- E.** Exclude any endovascular rescue or trial consideration because negative routine-trial results prove harm in every M2 occlusion.

200. A 79-year-old man with acute ischemic stroke is not receiving thrombolysis or thrombectomy. Blood pressure is 186/102 mm Hg, and there is no acute aortic syndrome, myocardial ischemia, pulmonary edema, or other hypertensive emergency. What is the best immediate blood-pressure strategy?

- A.** Lower systolic pressure promptly below 140 mm Hg because intensive acute control improves penumbral perfusion in untreated stroke.
- B.** Reduce mean arterial pressure by approximately 25% during the first hour despite absence of a hypertensive emergency.
- C.** Use short-acting IV antihypertensives to normalize blood pressure before starting routine antiplatelet therapy.
- D.** Target systolic pressure below 160 mm Hg during the first several hours to prevent hemorrhagic transformation.
- E.** Avoid routine aggressive blood-pressure reduction in the hyperacute period.

201. A 29-year-old woman with moyamoya angiopathy has recurrent ischemic attacks despite medical measures and evidence of impaired cerebrovascular reserve. Which therapy most directly addresses the underlying hemodynamic problem?

- A.** Intracranial angioplasty and stenting of the terminal internal carotid narrowing as routine definitive therapy.
- B.** Long-term anticoagulation to prevent thrombus formation in the basal collateral network.
- C.** Surgical cerebral revascularization to augment blood flow in territories with impaired cerebrovascular reserve.
- D.** High-dose glucocorticoids to reverse an inflammatory terminal-carotid arteriopathy.
- E.** Cervical carotid endarterectomy to improve inflow despite the intracranial location of the disease.

202. A patient with atrial fibrillation survives an anticoagulant-associated ICH. Weeks later, the team considers restarting anticoagulation. What is the best general principle?

- A.** Restart anticoagulation as soon as the hematoma is stable on CT because timing and hemorrhage mechanism do not affect recurrence risk.
- B.** Individualize the decision using embolic risk, hemorrhage mechanism, imaging markers, and patient values.
- C.** Avoid future anticoagulation after a lobar hemorrhage even when cardioembolic risk is high and other imaging markers are favorable.
- D.** Use aspirin or dual antiplatelet therapy as a reliably safer equivalent for prevention of AF-related embolism.
- E.** Base the decision mainly on age and CHA2DS2-VASc score without considering ICH mechanism or recurrence markers.

203. A patient receiving unfractionated heparin develops acute intracerebral hemorrhage. Which reversal agent is appropriate?

- A.** Four-factor prothrombin complex concentrate because it directly neutralizes unfractionated heparin molecules.
- B.** Vitamin K because unfractionated heparin impairs vitamin-K-dependent factor synthesis.
- C.** Idarucizumab because heparin is a direct thrombin inhibitor with a specific antibody-fragment antidote.

D. Protamine sulfate, which directly neutralizes unfractionated heparin and is used for urgent reversal.

E. Andexanet alfa because unfractionated heparin primarily inhibits factor Xa.

204. A 70-year-old woman arrives 35 minutes after sudden aphasia and hemiparesis. Which imaging study should be obtained first to rapidly exclude intracranial hemorrhage before reperfusion decisions?

A. Obtain CTA first because arterial anatomy should be established before hemorrhage exclusion in the reperfusion evaluation.

B. Obtain MRI with diffusion and susceptibility sequences first even when CT is immediately available.

C. CT perfusion first, because core and penumbra assessment is required before ruling out intracranial blood.

D. Carotid duplex first to determine whether cervical atherosclerosis is the likely mechanism.

E. Noncontrast head CT to rapidly exclude intracranial hemorrhage before acute reperfusion decisions.

205. A patient is labeled as having migraine at triage, and later clinicians fail to reconsider the diagnosis despite new focal weakness. Which cognitive error best describes this?

A. Confirmation bias, in which clinicians preferentially notice evidence supporting the migraine label after it is assigned.

B. Premature closure, in which the diagnostic search stops once migraine is accepted without adequate alternatives.

C. Diagnostic momentum, in which a prior label is carried forward by subsequent clinicians.

D. Anchoring bias, in which clinicians remain fixed on the initial migraine label despite new contradictory evidence.

E. Availability bias, in which a recent memorable migraine case dominates judgment.

206. A thrombolysis-capable hospital identifies an ICA terminus occlusion in a patient who also received IV thrombolysis. The nearest thrombectomy center has accepted the patient. What should happen next?

- A.** Observe after IV thrombolysis and transfer only if the neurologic deficit fails to improve within two hours.
- B.** Complete repeat vascular imaging after the thrombolytic infusion before arranging transport to the thrombectomy center.
- C.** Wait until 24-hour post-thrombolysis imaging excludes hemorrhage before transferring for endovascular treatment.
- D.** Keep the patient at the referring hospital because IV thrombolysis and thrombectomy should not be used in the same patient.
- E.** Arrange immediate transfer for thrombectomy without waiting to see whether thrombolysis works.

207. CTA in a patient with acute left hemispheric stroke shows severe cervical internal carotid disease with a superimposed intracranial M1 occlusion. What term best describes this configuration?

- A.** A carotid pseudo-occlusion caused by sluggish distal flow without a true cervical lesion.
- B.** A tandem cervical and intracranial arterial lesion involving both the extracranial internal carotid and distal M1 circulation.
- C.** An intracranial atherosclerotic occlusion with collateral reconstitution but no cervical carotid disease.
- D.** A border-zone infarct caused by severe cervical carotid stenosis without a distal intracranial occlusion.
- E.** A carotid dissection with mural hematoma but no separate intracranial large-vessel occlusion.

208. A 43-year-old patient develops fever, confusion, focal seizures, and MRI abnormalities in the medial temporal lobes. Which diagnosis is most likely?

- A.** Autoimmune limbic encephalitis, which can involve medial temporal lobes but lacks the classic febrile HSV pattern.
- B.** Meningovascular varicella-zoster infection causing vasculopathy and multifocal ischemia rather than predominantly temporal encephalitis.
- C.** Status epilepticus with peri-ictal MRI abnormalities but no underlying infectious encephalitis.
- D.** MELAS causing nonterritorial stroke-like cortical lesions and metabolic features.

E. Herpes simplex encephalitis causing a febrile seizure-associated encephalopathy with characteristic temporal-lobe involvement.

209. A pregnant patient is diagnosed with cerebral venous thrombosis. Which anticoagulant is generally preferred during pregnancy?

- A. Warfarin during pregnancy because fetal exposure is minimal and dosing is easier than heparin.
- B. A direct oral anticoagulant because pregnancy does not alter placental transfer or safety considerations.
- C. Unfractionated heparin only, because low-molecular-weight heparin is contraindicated during pregnancy.
- D. Therapeutic low-molecular-weight heparin, which is the preferred anticoagulant strategy for CVT during pregnancy.
- E. Aspirin monotherapy because therapeutic anticoagulation is deferred until after delivery in CVT.

210. A patient taking dabigatran develops an acute intracerebral hemorrhage soon after the last dose. Which specific reversal agent is most appropriate?

- A. Four-factor prothrombin complex concentrate as the specific monoclonal reversal agent for dabigatran.
- B. Andexanet alfa because dabigatran exerts its effect through direct factor Xa inhibition.
- C. Protamine sulfate because it directly binds and neutralizes dabigatran.
- D. Idarucizumab, a specific antibody fragment that rapidly binds and reverses dabigatran.
- E. Vitamin K because dabigatran reduces synthesis of vitamin-K-dependent clotting factors.

211. A child with sickle cell disease has an acute ischemic stroke. Which disease-specific treatment should be urgently coordinated in addition to standard stroke care?

- A. Begin chronic anticoagulation because sickle-cell arterial vasculopathy is primarily an embolic coagulation disorder.
- B. Use IV thrombolysis as disease-specific therapy to reduce the circulating fraction of sickled erythrocytes.

- C. Rapid transfusion, often exchange transfusion, to reduce sickling and improve oxygen delivery.
- D. Use corticosteroids to suppress vascular inflammation and reverse hemoglobin polymerization during the acute stroke.
- E. Use antiplatelet monotherapy as the disease-specific treatment without urgent hematologic transfusion support.

212. A 29-year-old woman has new headache, papilledema, and a focal seizure two weeks postpartum. Noncontrast CT is unrevealing. Which vascular imaging study is most appropriate to evaluate the suspected diagnosis?

- A. CT venography or MR venography for direct evaluation of suspected cerebral venous thrombosis in the postpartum setting.
- B. CTA of the head and neck focused on arterial occlusion without a dedicated venous phase.
- C. Routine brain MRI without venographic imaging, relying on parenchymal abnormalities to confirm sinus patency.
- D. Catheter arterial angiography as the preferred initial test for a suspected dural venous sinus thrombosis.
- E. Repeat noncontrast CT after several days because an initially normal scan makes urgent venous imaging unnecessary.

213. A malnourished patient is hypoglycemic and suspected of having Wernicke encephalopathy. What is the best treatment approach?

- A. Correct hypoglycemia first and delay thiamine until the neurologic response to glucose is known.
- B. Give parenteral thiamine promptly and treat hypoglycemia without harmful delay.
- C. Give oral thiamine only because parenteral treatment is reserved for confirmed MRI abnormalities.
- D. Withhold glucose until thiamine has been administered for several hours to avoid precipitating neurologic injury.
- E. Treat with folate and multivitamins first because acute parenteral thiamine does not affect suspected Wernicke encephalopathy.

214. A patient with spontaneous ICH has perihematomal edema but no tumor or inflammatory disorder. Which therapy should not be used routinely to improve outcome?

- A.** Hyperosmolar therapy used for an acute intracranial-pressure crisis with clinical deterioration.
- B.** Corticosteroids for perihematomal edema, which should not be used routinely to improve outcome after spontaneous ICH.
- C.** Careful blood-pressure management using smooth control and avoidance of excessive variability.
- D.** Reversal of clinically significant anticoagulation when the hemorrhage is anticoagulant associated.
- E.** Treatment of fever, hypoxemia, and other systemic physiologic derangements when present.

215. A 25-year-old woman has CVT without pregnancy, estrogen exposure, infection, or malignancy. Which evaluation is most appropriate after the acute phase?

- A.** Defer thrombophilia evaluation because a young patient with unprovoked CVT has the same recurrence profile as a clearly transiently provoked event.
- B.** Obtain a broad inherited thrombophilia panel during acute anticoagulation and interpret all levels as definitive baseline values.
- C.** Test only for antiphospholipid antibodies because other persistent or inherited prothrombotic conditions cannot affect counseling.
- D.** Perform indiscriminate malignancy imaging beyond age- and symptom-appropriate evaluation while ignoring thrombotic risk factors.
- E.** Assess for selected acquired or inherited prothrombotic conditions based on the clinical context and appropriate test timing.

216. A patient with symptomatic severe carotid stenosis is being considered for revascularization. Which feature most strongly favors carotid endarterectomy over transfemoral carotid stenting?

- A.** Prior neck radiation and extensive scar tissue that substantially increase the difficulty of open surgical exposure.
- B.** Severe cardiopulmonary disease that markedly increases perioperative surgical risk.
- C.** Advanced age with anatomy suitable for surgery and acceptable operative risk.

- D.** A lesion located high in the neck where surgical access is technically unfavorable.
- E.** Contralateral recurrent laryngeal nerve palsy that raises concern about cranial-nerve complications of endarterectomy.

217. A 59-year-old woman presents 2 hours after onset of disabling left hemiparesis. CT excludes hemorrhage. She has no contraindication to thrombolysis. Which intravenous thrombolytic approach is consistent with current acute ischemic stroke guidance?

- A.** Either tenecteplase or alteplase is an acceptable thrombolytic option.
- B.** Alteplase is required because current recommendations do not permit tenecteplase within the standard treatment window.
- C.** Tenecteplase is required because alteplase is no longer recommended for disabling ischemic stroke.
- D.** Perfusion-mismatch imaging is required before either thrombolytic can be given within two hours of witnessed onset.
- E.** IV thrombolysis should be withheld unless vascular imaging demonstrates a proximal large-vessel occlusion.

218. A near-miss medication error is caught before reaching the patient. What is the most useful quality-improvement response?

- A.** Document the near miss locally but reserve formal analysis for events that actually reach a patient.
- B.** Counsel the individual involved and close the event if no similar error has been reported previously.
- C.** Report and analyze the near miss to identify system vulnerabilities before harm occurs.
- D.** Add a second-person verification step immediately without first determining where and why the process failed.
- E.** Track the event as a safety metric but postpone workflow changes until a pattern of several similar near misses emerges.

219. A patient receives IV thrombolysis for acute ischemic stroke and remains clinically stable. When should routine antiplatelet therapy generally be started?

- A.** Begin aspirin immediately after the thrombolytic bolus if there is no clinical deterioration during treatment.
- B.** Start antiplatelet therapy six hours after thrombolysis if a repeat neurologic examination is stable.
- C.** After follow-up imaging at about 24 hours excludes intracranial hemorrhage.
- D.** Delay antiplatelet therapy for 48 to 72 hours even when 24-hour imaging shows no hemorrhage.
- E.** Start antiplatelet therapy only after repeat vascular imaging confirms recanalization of the culprit artery.

220. A 39-year-old patient with a cryptogenic nonlacunar stroke has a patent foramen ovale with a large right-to-left shunt and no alternative stroke mechanism after a complete evaluation. Which feature makes the PFO more likely to be causally relevant?

- A.** Atrial fibrillation discovered on prolonged monitoring, providing a stronger competing cardioembolic mechanism.
- B.** Severe ipsilateral carotid stenosis supplying the infarct territory, providing a plausible artery-to-artery source.
- C.** A mechanical mitral valve with inadequate anticoagulation, providing a high-risk cardiac embolic source.
- D.** A classic lacunar infarct in a patient with longstanding hypertension and diabetes.
- E.** Young age, embolic infarct pattern, and absence of competing vascular mechanisms.

Answers

1. **E.** Border-zone or watershed infarcts occur between major arterial territories and are especially vulnerable to systemic hypoperfusion. Bilateral ACA-MCA border-zone injury can produce the classic 'man-in-the-barrel' pattern of proximal arm weakness.
2. **D.** Once aneurysmal SAH is suspected or confirmed, the bleeding source should be rapidly identified, usually with CTA and often catheter angiography. Early aneurysm characterization enables definitive treatment and reduces the risk of rebleeding.
3. **D.** After hematoma stability is established, low-dose pharmacologic VTE prophylaxis can be considered in immobile ICH patients. The goal is prevention of DVT and pulmonary embolism without using full therapeutic anticoagulation.
4. **C.** In spontaneous ICH associated with antiplatelet therapy, routine platelet transfusion outside specific situations such as emergency surgery or severe thrombocytopenia has not improved outcomes and may be harmful. Management should focus on evidence-based hemostatic and supportive measures.
5. **B.** HSV encephalitis is treatable but time sensitive. Empiric intravenous acyclovir should be started promptly when the diagnosis is reasonably suspected rather than waiting for confirmatory CSF testing.
6. **C.** Migraine aura typically evolves gradually over minutes and often includes positive visual or sensory symptoms that spread sequentially. TIAs more often cause sudden negative deficits maximal at onset, while subarachnoid hemorrhage produces abrupt severe headache rather than a stereotyped spreading aura.
7. **E.** A dural arteriovenous fistula is an acquired shunt between dural arteries and dural venous sinuses or cortical veins. Cortical venous reflux is a high-risk feature because it can cause venous hypertension, hemorrhage, and neurologic decline.
8. **E.** Recurrent thunderclap headache with multifocal 'beading' of cerebral arteries and relatively bland CSF is characteristic of reversible cerebral vasoconstriction syndrome. The vasoconstriction typically resolves over weeks to months, distinguishing it from fixed vasculopathies.
9. **C.** CTA rapidly depicts the cervical and intracranial arterial lumen and is a standard first-line method for detecting large-vessel occlusion. It also provides information about tandem lesions and vascular anatomy relevant to thrombectomy planning.
10. **B.** Fever after stroke is associated with worse neurologic outcome and should prompt evaluation for an underlying cause. Reasonable temperature control includes antipyretic treatment and treatment of identified infection rather than permissive hyperthermia.
11. **E.** Dietary patterns emphasizing vegetables, fruits, whole grains, legumes, fish, and unsaturated fats while limiting sodium and highly processed foods support vascular risk reduction. Benefits are broader than any single supplement or nutrient.

- 12. E.** PRES is strongly associated with severe hypertension, eclampsia, renal failure, and certain immunosuppressive exposures. MRI typically shows posterior-predominant vasogenic edema, and treatment targets the provoking factor, blood pressure, and seizures.
- 13. C.** Severe symptomatic extracranial carotid stenosis is a treatable cause of recurrent stroke. In appropriate candidates with nondisabling events, carotid endarterectomy provides the greatest benefit when performed without unnecessary delay after stabilization.
- 14. B.** Cerebral edema after large infarction often evolves over several days. Serial neurologic assessment and urgent imaging when consciousness or focal deficits worsen allow timely recognition of mass effect and consideration of decompressive surgery.
- 15. D.** Transitions are vulnerable to communication errors. Standardized handoffs, medication reconciliation, and closed-loop confirmation of critical information reduce omission and misunderstanding.
- 16. A.** Crossed pain-temperature deficits, ipsilateral ataxia, and nucleus ambiguus symptoms are classic for lateral medullary infarction. The responsible vascular territory is commonly PICA or the vertebral artery.
- 17. C.** Acute blood-pressure treatment in appropriate ICH patients should be prompt but controlled, avoiding excessive drops and large variability. Smooth sustained control can reduce hematoma expansion risk without the hazards of profound hypotension.
- 18. A.** Paroxysmal atrial fibrillation may be missed during a short hospitalization. Extended external monitoring or an implantable loop recorder increases detection when an occult cardioembolic source remains plausible.
- 19. B.** CPAP provides pneumatic splinting of the upper airway and is a standard treatment for moderate-to-severe OSA. Weight management, positional strategies, oral appliances, or surgery may also be appropriate depending on anatomy and severity.
- 20. E.** Fabry disease is an X-linked lysosomal disorder caused by alpha-galactosidase A deficiency. Cerebrovascular disease can coexist with renal disease, cardiomyopathy, angiokeratomas, and small-fiber neuropathic pain.
- 21. C.** When LDL remains above goal despite maximally tolerated statin therapy in a patient with atherosclerotic disease, adding a proven nonstatin LDL-lowering agent is reasonable. Ezetimibe is commonly used before or along with other agents depending on residual risk and LDL level.
- 22. E.** CSF HSV PCR is the principal diagnostic test for HSV encephalitis and has high sensitivity and specificity. Very early testing can occasionally be negative, so repeat testing may be warranted when clinical suspicion remains high.

- 23. A.** Confirmation bias is the tendency to seek or interpret information in ways that support an existing belief while discounting contradictory evidence. Deliberate diagnostic timeouts and active consideration of alternatives can mitigate it.
- 24. D.** Continued tobacco use increases vascular risk, whereas cessation lowers the risk of recurrent stroke and other cardiovascular events. Effective treatment often combines counseling, behavioral support, and pharmacotherapy when appropriate.
- 25. B.** A normal noncontrast CT does not exclude CVT. Dedicated venous imaging with CTV or MRV is required to assess the dural sinuses and cerebral veins when suspicion remains substantial.
- 26. D.** Hyperosmolar agents such as hypertonic saline or mannitol can be used to manage acute intracranial pressure crises. Routine continuous prophylactic hyperosmolar therapy has not shown outcome benefit and exposes patients to fluid and electrolyte complications.
- 27. E.** Recurrent, stereotyped lacunar motor or sensorimotor attacks without cortical features are characteristic of capsular warning syndrome. The syndrome reflects unstable small penetrating-artery ischemia and carries a substantial early risk of completed lacunar infarction.
- 28. B.** Shared decision-making is appropriate when more than one reasonable option exists and patient preferences affect the balance of benefits and harms. The clinician contributes evidence and expertise while the patient contributes goals and values.
- 29. E.** Anti-NMDA receptor encephalitis is an autoimmune encephalitis that can be associated with ovarian teratoma or other tumors. Treatment combines immunotherapy, tumor removal when present, and aggressive supportive management of seizures, dysautonomia, and behavioral complications.
- 30. C.** The ACA supplies the medial frontal and parietal lobes, including the leg motor area and circuits involved in initiation and bladder control. Leg-predominant weakness with abulia strongly suggests an ACA-territory infarct.
- 31. A.** Vasoconstriction in RCVS may evolve over several days, so early angiography can be unrevealing. When clinical features are compelling, repeat noninvasive or catheter angiography may demonstrate the characteristic multifocal narrowing later.
- 32. C.** Mobile stroke units bring imaging, laboratory testing, and stroke expertise into the prehospital environment. Their main advantage is reducing time to diagnosis and IV thrombolysis and improving early triage within an organized stroke system.
- 33. D.** Spinal epidural hematoma can cause irreversible cord injury if compression persists. Rapid reversal of coagulopathy and urgent surgical evaluation for decompression are priorities when significant or progressive neurologic deficits are present.

- 34. E.** Continuous EEG can detect nonconvulsive seizures and ictal-interictal patterns that are not apparent on examination. It is particularly useful when consciousness fluctuates or subtle motor events raise concern for occult seizure activity.
- 35. C.** Dysarthria-clumsy hand syndrome is a recognized lacunar syndrome, often arising from a small pontine or internal capsular infarct. The combination of dysarthria and disproportionate hand incoordination is more specific than a generic pure motor deficit.
- 36. B.** Intermittent pneumatic compression is effective early mechanical prophylaxis in immobile ICH patients. Graduated compression stockings alone are ineffective, while pharmacologic prophylaxis is timed after assessment of hematoma stability and bleeding risk.
- 37. B.** Occlusion at the distal basilar artery can compromise the midbrain, thalami, and posterior cerebral artery territories. The resulting syndrome often includes impaired consciousness, vertical gaze abnormalities, pupillary findings, and visual disturbances.
- 38. D.** Severity scales are useful for communication and risk stratification but are not sufficiently precise to dictate individual treatment limitation. Decisions should incorporate the patient's values, clinical trajectory, reversible factors, and shared decision-making rather than a single score.
- 39. B.** Polysomnography measures airflow, respiratory effort, oxygen saturation, sleep stage, and other physiologic variables. It remains the comprehensive diagnostic test when sleep-disordered breathing is suspected and a full laboratory evaluation is appropriate.
- 40. C.** The modified Rankin Scale grades global disability. An mRS of 3 corresponds to moderate disability requiring some help but allowing independent walking; exact categorization depends on the patient's functional limitations.
- 41. B.** Routine seizure prophylaxis is not recommended after SAH, but it may be considered in higher-risk situations such as high-grade hemorrhage, cortical infarction, associated intraparenchymal hemorrhage, hydrocephalus, or certain aneurysm locations.
- 42. A.** The sensitivity of noncontrast CT for subarachnoid blood declines with time. When presentation is delayed and suspicion remains high after a negative CT, additional evaluation—classically CSF analysis and/or appropriate vascular imaging depending on the clinical pathway—is warranted.
- 43. C.** Neuromyelitis optica spectrum disorder commonly causes severe optic neuritis and longitudinally extensive myelitis and is often associated with aquaporin-4 IgG. Early recognition matters because long-term relapse prevention differs from treatment of typical multiple sclerosis.
- 44. C.** TEE provides improved visualization of the left atrium, left atrial appendage, atrial septum, valves, and thoracic aorta compared with routine transthoracic imaging. It is particularly useful when a cardioaortic embolic source remains suspected.

- 45. A.** Telestroke can provide real-time vascular neurology expertise to hospitals without onsite specialists. It supports rapid examination, imaging review, thrombolysis decisions, and transfer planning within regional systems of care.
- 46. D.** A definite LV thrombus is a major embolic source and generally warrants anticoagulation after the acute stroke bleeding risk is considered. Duration and agent are individualized according to cardiac disease, thrombus resolution, and concurrent antiplatelet needs.
- 47. E.** PACNS often presents subacutely with headache, encephalopathy, seizures, or multifocal strokes and commonly has inflammatory CSF abnormalities. RCVS more characteristically produces recurrent thunderclap headaches with normal or near-normal CSF and reverses over time.
- 48. A.** Early dysphagia screening identifies patients who need modified diet, supervised feeding, or formal swallowing assessment. This is a core stroke-unit practice because aspiration pneumonia is an important preventable complication.
- 49. A.** Alexia without agraphia is classically caused by a dominant left occipital infarct plus splenial involvement, disconnecting visual information from language networks. The vascular lesion is most often in the left posterior cerebral artery territory.
- 50. C.** When giant cell arteritis threatens vision, treatment should not be delayed for biopsy or imaging confirmation. Prompt glucocorticoids reduce the risk of irreversible visual loss in the affected or contralateral eye.
- 51. D.** New-onset seizures after SAH should be treated, commonly for a limited period if no recurrent seizure or other ongoing indication develops. Routine prophylaxis is not necessary in lower-risk patients, and phenytoin is generally avoided because of adverse outcome associations.
- 52. E.** RCVS is a dysregulation of cerebral arterial tone rather than a primary inflammatory vasculitis. Management focuses on removing triggers and supportive treatment; glucocorticoids can worsen the syndrome and are not routine therapy.
- 53. B.** Deep hemorrhages in the basal ganglia, thalamus, pons, and cerebellum are classic for hypertensive small-vessel arteriopathy. Chronic hypertension produces lipohyalinotic and arteriolosclerotic changes in penetrating arteries that predispose to rupture.
- 54. C.** Severe hemispatial neglect and constructional impairment are characteristic of nondominant, usually right, parietal injury. An MCA infarction often adds contralateral face-arm weakness or sensory loss.
- 55. A.** Definite antiphospholipid syndrome with arterial thrombosis generally warrants long-term anticoagulation with a vitamin K antagonist. Management is individualized, but high-risk APS is not treated as an ordinary cryptogenic stroke with antiplatelet therapy alone.

- 56. C.** When the clinical examination is limited, multimodal monitoring can identify evolving perfusion deficits or vasospasm. TCD, CTA, CTP, continuous EEG, and selected invasive methods can complement expert bedside assessment.
- 57. C.** Large or mobile aortic arch atheroma can embolize into cerebral arteries and is associated with recurrent vascular risk. Management emphasizes intensive atherosclerotic risk-factor control and antithrombotic therapy tailored to the overall clinical context.
- 58. A.** A brain AVM consists of a nidus of abnormal vessels that directly shunts arterial blood into veins without a normal capillary bed. AVMs may present with hemorrhage, seizure, headache, or incidentally on imaging.
- 59. B.** Hemispatial neglect most often follows injury to the nondominant right parietal attention network. The deficit is not a primary sensory loss; rather, the patient fails to attend to or represent the contralesional side of space.
- 60. E.** Convulsive status epilepticus is a neurologic emergency requiring immediate treatment. A benzodiazepine rapidly terminates seizures, while a second-line antiseizure agent is given promptly to reduce recurrence after the short benzodiazepine effect wanes.
- 61. A.** Contemporary guidance recognizes a potential role for endovascular therapy in selected children with disabling LVO when anatomy, imaging, timing, and expertise are favorable. Evidence is less extensive than in adults, so multidisciplinary case selection remains essential.
- 62. E.** Most noncardioembolic ischemic strokes are managed long term with single antiplatelet therapy. Prolonged dual antiplatelet therapy is reserved for specific circumstances because bleeding risk rises without a general long-term stroke-prevention advantage.
- 63. A.** ASPECTS is a 10-point semiquantitative CT score used to characterize early ischemic change in the MCA territory. Lower scores indicate more extensive early infarct involvement and historically informed EVT selection, although treatment eligibility has expanded for some large-core patients.
- 64. A.** Enteral nimodipine improves functional outcome after aneurysmal SAH and should be started early unless contraindicated. Routine statins and intravenous magnesium have not shown outcome benefit for prevention of delayed cerebral ischemia.
- 65. C.** Short-term dual antiplatelet therapy is beneficial after selected high-risk TIA or minor noncardioembolic ischemic stroke when started early. The benefit is concentrated early, whereas prolonged DAPT increases bleeding and is not recommended routinely for long-term secondary prevention.
- 66. B.** Restricted diffusion with reduced ADC reflects cytotoxic edema and can appear within minutes of arterial ischemia. It is the most sensitive standard MRI marker of acute infarction early after symptom onset.

- 67. D.** A hyperdense MCA sign on noncontrast CT can be an early marker of acute intraluminal thrombus before substantial ischemic parenchymal change becomes visible. It should prompt urgent vascular imaging when clinically appropriate.
- 68. C.** Venous infarcts often cross arterial boundaries and may be hemorrhagic because impaired venous drainage raises capillary pressure. The postpartum state, headache, and seizure further increase suspicion for cerebral venous thrombosis.
- 69. E.** Locked-in syndrome results from bilateral ventral pontine injury that interrupts corticospinal and corticobulbar pathways while sparing consciousness and often vertical eye movements. Basilar artery occlusion is a classic cause.
- 70. E.** Wernicke encephalopathy results from thiamine deficiency and classically involves altered mental status, gait ataxia, and ocular motor abnormalities. The full triad is often incomplete, so treatment should be based on clinical suspicion.
- 71. D.** Cancer-associated hypercoagulability often produces recurrent embolic-appearing infarcts in multiple vascular territories. The mechanism may include systemic thrombosis, nonbacterial thrombotic endocarditis, or tumor-related coagulation activation.
- 72. A.** Fibromuscular dysplasia classically affects medium-sized arteries and can produce a 'string-of-beads' appearance. Cervicocephalic FMD is associated with dissection, aneurysm, and tortuosity and often involves arterial segments not typical for atherosclerosis.
- 73. E.** Large anterior myocardial infarctions can produce severe regional akinesis and left ventricular mural thrombus. Embolization from the LV can cause infarcts in one or multiple cerebral arterial territories.
- 74. A.** Cavernous malformations are low-flow vascular lesions with recurrent blood products that create a characteristic mixed-signal core and hemosiderin rim on MRI. They are often angiographically occult because they lack high-flow arterial shunting.
- 75. B.** For severe symptomatic intracranial atherosclerotic stenosis, aggressive medical therapy is first-line and includes intensive vascular risk-factor control plus short-term dual antiplatelet therapy in appropriate patients. Routine stenting as initial therapy has produced excess early harm in trials.
- 76. E.** PACNS can mimic infection, malignancy, RCVS, and other vasculopathies. Brain and leptomeningeal biopsy has imperfect sensitivity because disease is patchy, but it can establish vasculitis and exclude important mimics before exposing a patient to prolonged immunosuppression.
- 77. D.** Malignancy can produce a hypercoagulable state with sterile valvular vegetations, termed nonbacterial thrombotic endocarditis. Recurrent infarcts in multiple vascular territories are a classic embolic pattern.

- 78. E.** Most CVT is managed with anticoagulation, but a small group with clinical deterioration despite treatment may require rescue endovascular therapy. Decompressive surgery can be lifesaving when malignant edema or herniation develops.
- 79. B.** Selected patients with unknown-onset stroke may be considered for extended-window thrombolysis when advanced imaging suggests that infarction is recent or that salvageable tissue remains. DWI-FLAIR mismatch is one established imaging-selection strategy.
- 80. C.** Cerebellar hemorrhage can rapidly become fatal because of brainstem compression and obstructive hydrocephalus. Neurologic deterioration, compression, hydrocephalus, and larger volume are key indications for urgent surgical evacuation.
- 81. A.** Although DWI is highly sensitive, small lesions—especially in the posterior circulation and when imaged very early—can occasionally be missed. Clinical judgment and repeat imaging may be necessary when the syndrome strongly suggests ischemia.
- 82. D.** Central post-stroke pain can emerge after thalamic or other central sensory pathway injury and is characterized by neuropathic burning, allodynia, or dysesthesia. It differs from peripheral pain syndromes because the lesion is within central somatosensory pathways.
- 83. B.** Goal-directed maintenance of euvolemia is preferred after SAH. Routine prophylactic hypervolemia can cause pulmonary edema, cardiac complications, and other morbidity without improving functional outcome.
- 84. A.** An otherwise eligible patient with a disabling acute ischemic stroke within the standard thrombolysis window should receive intravenous thrombolysis promptly. Evaluation for thrombectomy can proceed in parallel when an occlusion is present; IV therapy should not be delayed solely because EVT may also be performed.
- 85. C.** Time-of-flight MRA can visualize intracranial arterial flow without iodinated contrast and often without gadolinium. It is useful when MRI is feasible and CT contrast is problematic, though it can overestimate stenosis in slow-flow states.
- 86. E.** Time to reperfusion strongly influences outcome. Stroke systems should eliminate nonessential delays while still obtaining tests that are clinically necessary for a specific patient, using parallel processing and predefined pathways whenever possible.
- 87. B.** Modern stroke systems should account for local geography, transport times, thrombolysis capability, and interhospital transfer efficiency. For suspected LVO, direct transport to an EVT-capable center may be advantageous when bypass delay is acceptable and transfer systems are not rapid.
- 88. D.** Leptomeningeal collaterals route blood from adjacent arterial territories into hypoperfused tissue. Better collateral circulation can slow infarct-core growth and extend tissue viability, although it does not remove the need for timely reperfusion.

- 89. B.** Absolute risk reduction is the control event rate minus the treatment event rate: 20% minus 12% equals 8 percentage points. The corresponding number needed to treat would be $1/0.08$, or about 13.
- 90. A.** Atrial fibrillation is a high-risk cardioembolic source, and oral anticoagulation is substantially more effective than antiplatelet therapy for preventing recurrent embolic stroke. Timing after the acute infarct is individualized to balance recurrent embolism against hemorrhagic transformation.
- 91. D.** Motor fibers in the internal capsule are above the pyramidal decussation, so injury produces contralateral weakness. Involvement of motor fibers across the genu and posterior limb can affect the contralateral face, arm, and leg.
- 92. D.** Moyamoya is defined by progressive stenosis or occlusion around the terminal internal carotid circulation with development of fragile basal collateral networks. Patients may present with ischemic or hemorrhagic events depending on age and collateral physiology.
- 93. E.** Mild hyperhomocysteinemia is not a reason to abandon proven secondary-prevention measures. Vitamin treatment may be appropriate for a documented deficiency or selected metabolic disorders, but it does not replace mechanism-based antithrombotic therapy and vascular risk-factor control.
- 94. B.** Sneddon syndrome is characterized by livedo racemosa and recurrent arterial cerebrovascular events. It may be associated with antiphospholipid antibodies, although seronegative cases occur, and management depends on the underlying thrombotic risk profile.
- 95. C.** The absolute risk reduction is 5%, or 0.05. Number needed to treat is the reciprocal of absolute risk reduction, so $1/0.05$ equals 20.
- 96. E.** The CTA spot sign represents contrast leakage within an acute hematoma and is associated with a higher risk of hematoma expansion. It is a prognostic imaging marker rather than a direct indication of ischemic penumbra or venous thrombosis.
- 97. B.** Acute hydrocephalus after SAH can cause rapid neurologic decline and is treated with CSF diversion, usually an external ventricular drain. Management must account for aneurysm status, intracranial pressure, and the risk of overdrainage.
- 98. E.** Atrial myxoma is a benign cardiac tumor, classically attached near the fossa ovalis, that can cause systemic emboli and constitutional symptoms. Surgical resection is usually required because embolic and obstructive risks persist.
- 99. A.** Before aneurysm obliteration, clinicians balance rebleeding risk against preservation of cerebral perfusion. Avoiding severe hypertension and large blood-pressure swings while also preventing hypotension is preferable to routinely inducing hypertension, hypotension, or hypervolemia.
- 100. C.** Trials of empiric anticoagulation in unselected ESUS patients did not reduce recurrent stroke enough to offset bleeding. Antiplatelet therapy and continued etiologic evaluation are appropriate unless a specific indication for anticoagulation later emerges.

- 101. A.** Benign paroxysmal positional vertigo is caused by displaced otoconia in a semicircular canal. Canalith-repositioning maneuvers treat the mechanical problem directly and are preferred over chronic vestibular suppressants.
- 102. C.** Secondary prevention depends on sustained implementation, not just prescribing evidence-based drugs. Multidisciplinary approaches that identify health literacy, cost, transportation, caregiver, and regimen-complexity barriers are more likely to improve adherence and outcomes.
- 103. E.** Facial nucleus involvement and hearing loss point to a lateral pontine lesion, classically in the AICA territory. In contrast, lateral medullary infarction more often causes nucleus ambiguus dysfunction without a lower motor neuron facial palsy.
- 104. A.** Amaurosis fugax is transient monocular retinal ischemia, often caused by embolism or hypoperfusion in the ipsilateral carotid-ophthalmic circulation. It should prompt urgent vascular evaluation because it can precede cerebral ischemic stroke.
- 105. C.** A do-not-resuscitate order specifically addresses attempted resuscitation after cardiopulmonary arrest unless broader limitations are explicitly documented. It should not be conflated with a decision to withhold other medical, surgical, or rehabilitative treatments.
- 106. B.** Most cervical dissections heal or stabilize over time. Antithrombotic treatment is commonly continued for several months, with follow-up imaging and clinical factors helping determine whether ongoing therapy is needed.
- 107. B.** Current evidence supports thrombectomy for appropriately selected basilar artery occlusion patients, including many presenting within 24 hours when the deficit is substantial. Severe brainstem symptoms and an NIHSS well above 10 make this a strong endovascular consideration.
- 108. E.** The paired internal cerebral veins drain the thalami and converge toward the vein of Galen and straight sinus. Deep venous thrombosis can therefore produce bilateral thalamic edema, infarction, and impaired consciousness.
- 109. C.** Warfarin-associated ICH requires rapid replacement of vitamin K-dependent clotting factors and sustained reversal of warfarin effect. Four-factor PCC acts quickly, while intravenous vitamin K supports durable correction.
- 110. B.** Recurrent lobar hemorrhage in an older adult with strictly lobar microbleeds and cortical superficial siderosis strongly supports cerebral amyloid angiopathy. Amyloid deposition weakens cortical and leptomeningeal small vessels and increases recurrent lobar bleeding risk.
- 111. E.** Patients with moyamoya may have exhausted autoregulatory reserve. Hyperventilation-induced hypocapnia causes cerebral vasoconstriction and can further reduce blood flow to vulnerable territories, provoking transient ischemic symptoms.

- 112. B.** Symptomatic delayed cerebral ischemia is managed by correcting reversible factors, maintaining euvolemia, and often augmenting blood pressure in selected patients to improve cerebral perfusion. Prophylactic hypervolemia is not recommended because it increases complications without proven benefit.
- 113. C.** For most patients with nonvalvular atrial fibrillation, direct oral anticoagulants are preferred because they are effective and generally reduce intracranial hemorrhage compared with warfarin. Mechanical valves and significant rheumatic mitral stenosis remain important exceptions.
- 114. B.** Cervical artery dissection can produce an intramural hematoma, tapered stenosis, intimal flap, double lumen, or pseudoaneurysm. Painful partial Horner syndrome is particularly suggestive of internal carotid dissection.
- 115. E.** Regular physical activity is part of comprehensive secondary prevention and improves vascular health, mobility, and overall conditioning. The program should be safe and adapted to neurologic and cardiopulmonary limitations, often with rehabilitation support.
- 116. C.** Mechanical prosthetic valves require vitamin K antagonist therapy; direct oral anticoagulants are not used for this indication. The specific INR target depends on valve type, location, and patient risk factors.
- 117. B.** Cortical venous reflux exposes fragile cortical veins to arterialized pressure and markedly increases the risk of intracranial hemorrhage and neurologic deficits. DAVF classification and treatment urgency therefore depend heavily on venous drainage pattern.
- 118. D.** Todd paralysis is a transient focal neurologic deficit after a seizure and can mimic acute ischemic stroke. The diagnosis depends on the witnessed ictal event, postictal evolution, imaging, and continued vigilance because seizure and stroke can also coexist.
- 119. E.** A root-cause approach examines handoffs, communication pathways, staffing, escalation rules, and technical failures rather than assuming one person's error explains the event. Durable quality improvement requires system redesign and follow-up measurement.
- 120. B.** Randomized trials support PFO closure in carefully selected patients, generally younger adults with nonlacunar cryptogenic stroke and features suggesting a causal PFO. The benefit does not extend to all incidental PFOs, so patient selection is essential.
- 121. E.** The NIHSS is valuable for standardized deficit measurement but is weighted toward anterior-circulation findings. Important deficits such as gait ataxia, isolated hand weakness, or some posterior-circulation syndromes can be disabling despite a low score.
- 122. B.** CADASIL is an autosomal dominant cerebral small-vessel arteriopathy caused by NOTCH3 variants. Migraine with aura, early lacunar strokes, psychiatric symptoms, and characteristic anterior temporal and external capsule MRI lesions are classic clues.

- 123. E.** Digital subtraction angiography remains the reference standard for detailed cerebral vascular anatomy and can be combined with endovascular treatment. CTA is excellent for rapid diagnosis, but DSA may be required when anatomy is uncertain or intervention is planned.
- 124. B.** Treated aneurysms can have residual filling or later recurrence, and some patients develop new aneurysms over time. Follow-up imaging is therefore part of long-term surveillance, especially when residual aneurysm, multiple aneurysms, young age, or strong family history is present.
- 125. E.** CVT commonly presents with headache and may cause seizures, papilledema, focal deficits, or encephalopathy. Estrogen exposure is a recognized prothrombotic risk factor, especially when combined with other thrombophilic conditions.
- 126. C.** Capacity is task specific and focuses on the patient's ability to understand relevant information, appreciate consequences, reason about options, and communicate a choice. A patient can have capacity while making a decision clinicians consider unwise.
- 127. A.** A swollen cerebellar infarct can rapidly compress the brainstem and obstruct the fourth ventricle. Neurosurgical decompression, often with CSF diversion when hydrocephalus is present, is lifesaving in a deteriorating patient.
- 128. D.** Loud snoring, witnessed upper-airway obstruction, and daytime sleepiness are classic for obstructive sleep apnea. OSA is common in patients with cerebrovascular disease and contributes to hypertension and vascular risk.
- 129. D.** Hyperglycemia is associated with worse outcomes, but intensive treatment to near-normal levels has not improved functional outcome and increases severe hypoglycemia. Management should correct important hyperglycemia while avoiding overly tight targets.
- 130. B.** Severe hypoglycemia can produce focal deficits that closely mimic stroke and is rapidly reversible. Glucose should be checked immediately in suspected stroke and corrected when markedly low, while continued deficits still require urgent stroke evaluation.
- 131. D.** Transcranial Doppler velocity screening is a validated strategy for identifying children with sickle cell anemia at increased stroke risk. Abnormally high velocities can trigger preventive transfusion programs that markedly reduce first-stroke risk.
- 132. B.** A small core surrounded by a larger hypoperfused region represents tissue-at-risk that has not yet infarcted. In appropriately selected patients, this mismatch can support reperfusion treatment beyond the conventional time window.
- 133. A.** Quality improvement requires a measure directly linked to the process being changed. Door-to-needle time is a concrete, reproducible metric for IV thrombolysis workflow and can be compared over time while accounting for case mix and balancing measures.

- 134. B.** Pediatric arterial ischemic stroke is uncommon but real and is frequently delayed in diagnosis because mimics are common. Current acute stroke systems increasingly emphasize rapid recognition, brain imaging, and vascular imaging in children with abrupt focal deficits.
- 135. B.** A sudden maximal-at-onset thunderclap headache with meningismus is classic for subarachnoid hemorrhage. Because early rebleeding can be catastrophic, urgent brain and vascular evaluation is required.
- 136. C.** Seizures are common in CVT, particularly with cortical lesions or hemorrhagic venous infarcts. Antiseizure treatment is appropriate for clinical seizures and does not eliminate the underlying need for anticoagulation.
- 137. E.** Malignant MCA infarction can cause fatal space-occupying edema. Decompressive hemicraniectomy performed before irreversible herniation substantially reduces mortality, particularly in younger patients, although survivors may have significant disability.
- 138. D.** Infective endocarditis is associated with vascular fragility, mycotic aneurysms, and hemorrhagic complications, making IV thrombolysis hazardous. Mechanical thrombectomy may still be considered in selected large-vessel occlusions because it does not require systemic fibrinolysis.
- 139. C.** Recanalization is an important treatment success, but clinical outcome depends on infarct core, collateral flow, complications, age, comorbidity, and rehabilitation. Clear communication should distinguish treatment efficacy from certainty of individual recovery.
- 140. D.** Deep microbleeds in classic perforator territories are strongly associated with hypertensive arteriopathy. This distribution contrasts with the strictly lobar pattern typical of cerebral amyloid angiopathy.
- 141. B.** Routine prophylactic antiseizure medication in ICH patients without evidence of seizures does not improve long-term seizure control or functional outcome. Treatment is appropriate when clinical or electrographic seizures occur.
- 142. A.** Predictive values depend on pretest prevalence. When disease becomes less common, a greater proportion of positive results are false positives, so positive predictive value falls while negative predictive value generally rises.
- 143. B.** Disability is determined by the functional consequence of the deficit, not by an NIHSS threshold alone. A low-NIHSS deficit that prevents an important activity or vocation can be disabling and can justify IV thrombolysis when other eligibility criteria are met.
- 144. A.** For cervical artery dissection causing ischemia, antithrombotic therapy is standard unless contraindicated. Available evidence does not establish clear universal superiority of antiplatelet therapy over anticoagulation, so the choice is individualized.

- 145. D.** Dysphagia is common after stroke and may be clinically subtle. A standardized swallow screen before food, liquids, or oral medications reduces aspiration risk and guides the need for formal swallowing evaluation.
- 146. E.** The postpartum period is a classic setting for RCVS. Recurrent thunderclap headaches with segmental vasoconstriction may be complicated by convexity subarachnoid hemorrhage, ischemic stroke, or posterior reversible encephalopathy.
- 147. E.** External ventricular drainage is indicated when intraventricular blood causes obstructive hydrocephalus and neurologic deterioration. Lumbar puncture is not an appropriate treatment for obstructive hydrocephalus and may be dangerous in the setting of mass effect.
- 148. D.** Painful partial Horner syndrome—ptosis and miosis, often with little facial anhidrosis—is a classic presentation of cervical internal carotid dissection. The periarterial sympathetic plexus is vulnerable to injury within the carotid wall.
- 149. E.** MELAS is a mitochondrial disorder in which stroke-like lesions often cross conventional vascular boundaries. Maternal inheritance and multisystem features such as hearing loss, diabetes, short stature, and lactic acidosis help distinguish it from arterial thromboembolic stroke.
- 150. D.** Young age, lobar location, and absence of typical hypertensive risk factors increase concern for an AVM, aneurysm, dural fistula, tumor, or other secondary cause. CTA, MRA, or catheter angiography may be needed depending on the initial findings and level of suspicion.
- 151. E.** A painful partial Horner syndrome is a classic clue to cervical internal carotid dissection. Sympathetic fibers travel along the carotid artery, while thromboembolism from the dissection can subsequently produce hemispheric ischemic symptoms.
- 152. C.** Hypertension is one of the strongest modifiable risk factors for both ischemic and hemorrhagic stroke. After the acute period, consistent blood-pressure control is central to secondary prevention and should be individualized to the patient and stroke mechanism.
- 153. D.** Infective endocarditis can generate friable infected vegetations that embolize to cerebral arteries, producing ischemic infarction, mycotic aneurysm, or hemorrhagic complications. Systemic infectious signs and positive blood cultures strongly support this mechanism.
- 154. A.** Teach-back tests whether communication was effective by asking the patient to restate the plan. It allows the clinician to correct misunderstandings without framing the patient as having failed a test.
- 155. A.** SAH can trigger a massive sympathetic surge leading to stress cardiomyopathy, ECG abnormalities, troponin elevation, and pulmonary edema. Recognition is important because cardiac dysfunction can complicate hemodynamic management of cerebral perfusion.
- 156. C.** Broad thrombophilia testing has low yield in typical older patients with an established stroke mechanism. Targeted testing is more appropriate in younger patients with unexplained arterial

thrombosis and clinical clues such as recurrent pregnancy loss, systemic autoimmunity, or prior thrombosis.

157. A. Delirium is an acute fluctuating disturbance of attention and cognition, usually triggered by medical illness, medication, pain, sleep disruption, or environmental factors. The rapid onset and variability distinguish it from chronic neurodegenerative dementia.

158. D. Sickle cell disease can cause intracranial stenotic vasculopathy and impaired oxygen delivery, creating high stroke risk in children. Screening and disease-specific prevention strategies are therefore central to pediatric cerebrovascular care.

159. E. Conduction aphasia is characterized by disproportionately impaired repetition with relatively fluent speech and comparatively preserved comprehension. It classically reflects disruption of the arcuate fasciculus or adjacent dominant temporoparietal language network.

160. C. Randomized trials have expanded the population that may benefit from thrombectomy to include selected patients with larger ischemic cores. Core size remains important for selection and prognosis, but it is not an automatic exclusion in an otherwise appropriate patient.

161. E. A dominant inferior-division MCA infarct can produce Wernicke aphasia and a contralateral superior quadrantanopia with relatively little motor deficit. The syndrome localizes to posterior temporal and adjacent parietal cortex.

162. B. Supplemental oxygen is appropriate for hypoxemia, but routine oxygen in a nonhypoxemic stroke patient has not shown benefit. Airway and ventilation support are reserved for patients who cannot maintain oxygenation or protect the airway.

163. A. Fibromuscular dysplasia is a nonatherosclerotic, noninflammatory arteriopathy that can involve multiple medium-sized arterial beds. Cervical and renal disease may coexist, and affected patients have increased risks of arterial dissection, aneurysm, and tortuosity.

164. C. Anticoagulation duration after CVT depends on recurrence risk and the persistence of provoking factors. A transiently provoked first event generally requires a finite course, whereas recurrent thrombosis or major persistent thrombophilia may justify longer therapy.

165. D. Andexanet alfa is a specific reversal agent for selected factor Xa inhibitors such as apixaban and rivaroxaban. When unavailable or unsuitable, prothrombin complex concentrate may be used according to local protocols and clinical circumstances.

166. A. Maternal neurologic outcome is critical to both mother and fetus. Pregnancy requires individualized risk-benefit assessment and multidisciplinary coordination, but it is not by itself a reason to withhold potentially lifesaving reperfusion therapy when the maternal indication is strong.

167. D. For clearly non-disabling minor deficits such as an isolated sensory syndrome, contemporary guidance favors dual antiplatelet therapy rather than IV thrombolysis. Thrombolysis remains appropriate for disabling deficits even when the NIHSS is numerically low.

168. D. A sensory level with bilateral weakness and sphincter dysfunction localizes to the spinal cord. MRI can rapidly identify compressive causes such as epidural hematoma, abscess, tumor, or severe structural disease requiring urgent treatment.

169. B. Ataxic hemiparesis combines weakness with disproportionate ipsilateral limb incoordination, commonly from a small infarct in the pons, internal capsule, or corona radiata. Absence of cortical signs supports a lacunar mechanism.

170. C. Marked hypertension is a modifiable exclusion to IV thrombolysis rather than an automatic permanent contraindication. Blood pressure should be reduced to the accepted pre-thrombolysis range and maintained afterward without excessive lowering.

171. B. When a patient's values and prior preferences are known, the surrogate should use substituted judgment to approximate the patient's own choice. A best-interest standard is used when the patient's preferences cannot be reasonably inferred.

172. C. Although long-term anticoagulation is important for secondary prevention in atrial fibrillation, routine urgent full-dose anticoagulation during the acute stroke period does not improve neurologic outcome and can increase intracranial bleeding. Timing is individualized according to infarct size, hemorrhagic transformation risk, and clinical context.

173. D. Subcortical vascular cognitive impairment often features slowed processing, impaired executive function, gait dysfunction, and mood changes associated with diffuse small-vessel disease and lacunes. Memory may be less disproportionately affected than in typical Alzheimer disease.

174. E. Cerebral amyloid angiopathy preferentially affects cortical and leptomeningeal vessels, producing lobar hemorrhage, lobar microbleeds, and cortical superficial siderosis. Hypertensive arteriopathy more often causes deep hemorrhage and deep microbleeds in the basal ganglia, thalamus, pons, or cerebellum.

175. C. Elevated lipoprotein(a) is genetically determined and associated with atherosclerotic cardiovascular and cerebrovascular risk. It can help explain premature or disproportionate atherosclerosis when traditional lipid measurements appear less striking.

176. C. Highly sensitive tests generate few false negatives. Therefore, a negative result can substantially lower the probability of disease, whereas positive results may require confirmation when specificity is modest.

- 177. B.** Blood-breakdown products create magnetic susceptibility and are well seen on GRE or susceptibility-weighted sequences. Their distribution can help distinguish hypertensive arteriopathy from cerebral amyloid angiopathy and can reveal prior occult hemorrhage.
- 178. E.** The dominant superior MCA division supplies lateral frontal cortex, including Broca area and face-arm motor regions. Infarction produces nonfluent aphasia with contralateral face-arm weakness, whereas inferior-division infarction more often causes fluent aphasia with less weakness.
- 179. B.** A positive likelihood ratio compares the probability of a positive test in diseased versus nondiseased patients. The larger the ratio, the more strongly a positive result shifts post-test probability upward.
- 180. D.** Aquaporin-4 IgG is a highly specific biomarker for NMOSD and can establish the diagnosis in the appropriate clinical context. MOG-IgG testing is considered when AQP4 is negative and the phenotype suggests MOG-associated disease.
- 181. C.** Routine prophylactic antiseizure medication is not recommended after ischemic stroke in the absence of seizures. A witnessed acute symptomatic seizure should be managed clinically, with longer-term therapy individualized according to recurrence risk and subsequent events.
- 182. A.** Vertebral artery dissection commonly presents with posterior neck or occipital pain and may cause posterior-circulation ischemia. Minor trauma or abrupt neck movement can precede symptoms, although many dissections occur spontaneously.
- 183. C.** Recent randomized data do not support intensive post-EVT systolic lowering below 140 mm Hg and suggest potential harm even after complete reperfusion. Blood pressure management should therefore avoid unnecessary aggressive reduction while respecting accepted post-reperfusion limits.
- 184. B.** Medial medullary infarction classically causes contralateral corticospinal weakness and dorsal column modality loss with ipsilateral hypoglossal weakness. The lesion lies in the paramedian medulla rather than the lateral medullary PICA territory.
- 185. B.** Nonconvulsive seizures may persist without obvious motor activity and can cause prolonged altered mental status. Continuous EEG is the key diagnostic tool when ongoing electrographic seizure activity is suspected.
- 186. E.** Benefit from carotid endarterectomy is greatest in severe symptomatic stenosis and is more modest in the 50%–69% range. Decision-making therefore depends heavily on individual clinical characteristics and expected perioperative risk.
- 187. D.** Epidural hematoma classically appears lens-shaped on CT and may follow a lucid interval before rapid deterioration. Temporal bone fracture can injure the middle meningeal artery and produce life-threatening mass effect.

- 188. B.** Early coordinated rehabilitation is important, but very aggressive mobilization within the first 24 hours after ICH can be harmful. Therapy is introduced after clinical stabilization and tailored to neurologic and medical status.
- 189. D.** Delirium management focuses on identifying and reversing the cause while supporting normal sleep, orientation, mobility, hydration, hearing, and vision. Antipsychotics are reserved for selected severe agitation or danger rather than used routinely.
- 190. D.** Aspirin is standard early therapy for most acute ischemic strokes when hemorrhage has been excluded and no thrombolysis-related delay applies. Routine urgent therapeutic anticoagulation does not improve outcome and increases bleeding risk.
- 191. A.** New headache in an older adult with jaw claudication, scalp tenderness, inflammatory markers, and transient visual symptoms is highly concerning for giant cell arteritis. The major neurologic emergency is prevention of permanent ischemic visual loss.
- 192. A.** A proximal anterior-circulation large-vessel occlusion causing a disabling deficit is a classic indication for endovascular thrombectomy when eligibility criteria are met. IV thrombolysis should also be given promptly when indicated rather than withheld because thrombectomy is planned.
- 193. E.** A pure motor syndrome from a small deep capsular infarct is a classic lacunar presentation. The usual substrate is disease of small penetrating arteries, often related to chronic hypertension or diabetes, rather than a cortical embolic mechanism.
- 194. A.** Transcranial Doppler can serially measure blood-flow velocities in major intracranial arteries and is useful as a bedside tool for detecting trends suggestive of vasospasm after subarachnoid hemorrhage. Interpretation requires attention to vessel, velocity, and clinical context.
- 195. C.** The cavernous sinus contains cranial nerves controlling eye movement and lies adjacent to the ophthalmic division of the trigeminal nerve. Septic thrombosis can therefore cause painful ophthalmoplegia, proptosis, chemosis, sensory loss, and systemic infection.
- 196. C.** The major early preventable hazard after aneurysmal SAH is rebleeding. Definitive clipping or endovascular treatment should therefore be performed promptly by an experienced cerebrovascular team, ideally within the first day when feasible.
- 197. D.** Anticoagulation is the foundation of acute CVT treatment, including many patients with hemorrhagic venous infarction caused by the thrombosis itself. The goal is to prevent thrombus propagation, facilitate recanalization, and reduce additional venous injury.
- 198. C.** Atherosclerotic ischemic stroke is an ASCVD event, and intensive LDL lowering reduces recurrent vascular events. High-intensity statin therapy is a core secondary-prevention intervention, with additional lipid-lowering therapy considered when targets are not reached.

199. B. Recent randomized trials of distal or medium-vessel occlusion have not established a routine functional benefit from thrombectomy. Established medical reperfusion therapy, including IV thrombolysis when otherwise indicated, should therefore not be withheld merely because an M2/DMVO is present. Endovascular treatment is not a blanket standard for isolated DMVO and remains an individualized or investigational consideration in selected circumstances.

200. E. When no reperfusion-specific threshold or other hypertensive emergency applies, aggressive early BP reduction can reduce collateral perfusion to ischemic tissue. Permissive hypertension is generally favored in the hyperacute period, with treatment reserved for markedly higher pressures or compelling indications.

201. C. Moyamoya is a progressive steno-occlusive arteriopathy in which surgical revascularization can augment cerebral blood flow and reduce recurrent ischemia. Direct, indirect, or combined bypass strategies are selected based on age, anatomy, and center expertise.

202. B. Resuming anticoagulation after ICH requires individualized balancing of cardioembolic risk against recurrent hemorrhage risk. Hemorrhage location, cerebral amyloid angiopathy markers, blood-pressure control, indication strength, timing, and patient preferences all matter.

203. D. Protamine neutralizes unfractionated heparin and is the standard specific reversal agent in major heparin-associated bleeding. Dose is guided by the amount and timing of recent heparin exposure.

204. E. Noncontrast CT is fast, widely available, and highly effective for excluding acute intracranial hemorrhage. Vascular and perfusion imaging can follow when needed, but they should not unnecessarily delay treatment in an otherwise straightforward early-window case.

205. D. Anchoring occurs when clinicians fix too strongly on an initial impression and insufficiently adjust when new information appears. Acute neurologic care requires repeated reassessment when the clinical picture changes.

206. E. Patients with eligible LVO should be transferred promptly for endovascular therapy even after IV thrombolysis. Waiting for clinical response can squander the time-dependent benefit of thrombectomy.

207. B. A tandem lesion combines an extracranial cervical carotid obstruction or severe stenosis with a downstream intracranial large-vessel occlusion. Recognition matters because endovascular strategy may need to address both lesions during acute reperfusion treatment.

208. E. HSV encephalitis classically targets the temporal and inferior frontal regions and can cause fever, altered behavior, aphasia, seizures, and hemorrhagic changes. Delay in antiviral therapy can lead to devastating neurologic injury.

209. D. Low-molecular-weight heparin is preferred for therapeutic anticoagulation during pregnancy because it does not cross the placenta and has an established safety record. Warfarin and direct oral anticoagulants have important pregnancy limitations.

210. D. Idarucizumab is a monoclonal antibody fragment that specifically binds dabigatran and rapidly reverses its anticoagulant effect. Agent-specific reversal is preferred when available for life-threatening dabigatran-associated bleeding.

211. C. Acute stroke in sickle cell disease requires urgent hematologic therapy to reduce the proportion of sickled hemoglobin and improve oxygen-carrying capacity. Exchange transfusion is commonly used, while long-term prevention is coordinated with hematology.

212. A. The postpartum state, headache, papilledema, and seizure are classic clues to cerebral venous thrombosis. CTV or MRV directly evaluates dural sinuses and cerebral veins and should be obtained when clinical suspicion is significant.

213. B. Suspected Wernicke encephalopathy warrants prompt parenteral thiamine. Hypoglycemia is itself an emergency and should also be treated promptly; thiamine should be administered before or alongside carbohydrate when feasible rather than delaying life-saving glucose.

214. B. Corticosteroids do not improve outcome in spontaneous ICH and can cause complications such as hyperglycemia and infection. Perihematomal edema is not managed like vasogenic edema from brain tumor.

215. E. When CVT is unprovoked or occurs at a young age, evaluation for clinically relevant acquired or inherited prothrombotic conditions may be useful when the result would affect counseling or management. Testing should be selected and timed carefully because acute thrombosis and anticoagulant therapy can alter several assays.

216. C. Older age is associated with a higher periprocedural stroke risk with transfemoral carotid stenting, making endarterectomy attractive when surgical risk is acceptable. Conversely, hostile neck anatomy or major surgical comorbidity can favor an endovascular approach.

217. A. Current guidance endorses either alteplase or tenecteplase for eligible patients treated within 4.5 hours. Advanced imaging selection is not required for a typical disabling stroke presenting within that standard window.

218. C. Near misses reveal hazards in the same systems that can later cause patient harm. Reporting and analyzing them supports proactive redesign and a culture of safety rather than waiting for an injury.

219. C. Antiplatelet and anticoagulant drugs are generally withheld during the first 24 hours after IV thrombolysis. Follow-up brain imaging is obtained before routine initiation to exclude treatment-associated intracranial hemorrhage.

220. E. A PFO is more likely causal when the patient is younger, the infarct is embolic rather than lacunar, and no stronger alternative mechanism exists. Traditional vascular risk factors and a definite competing embolic source reduce the likelihood that an incidental PFO explains the event.